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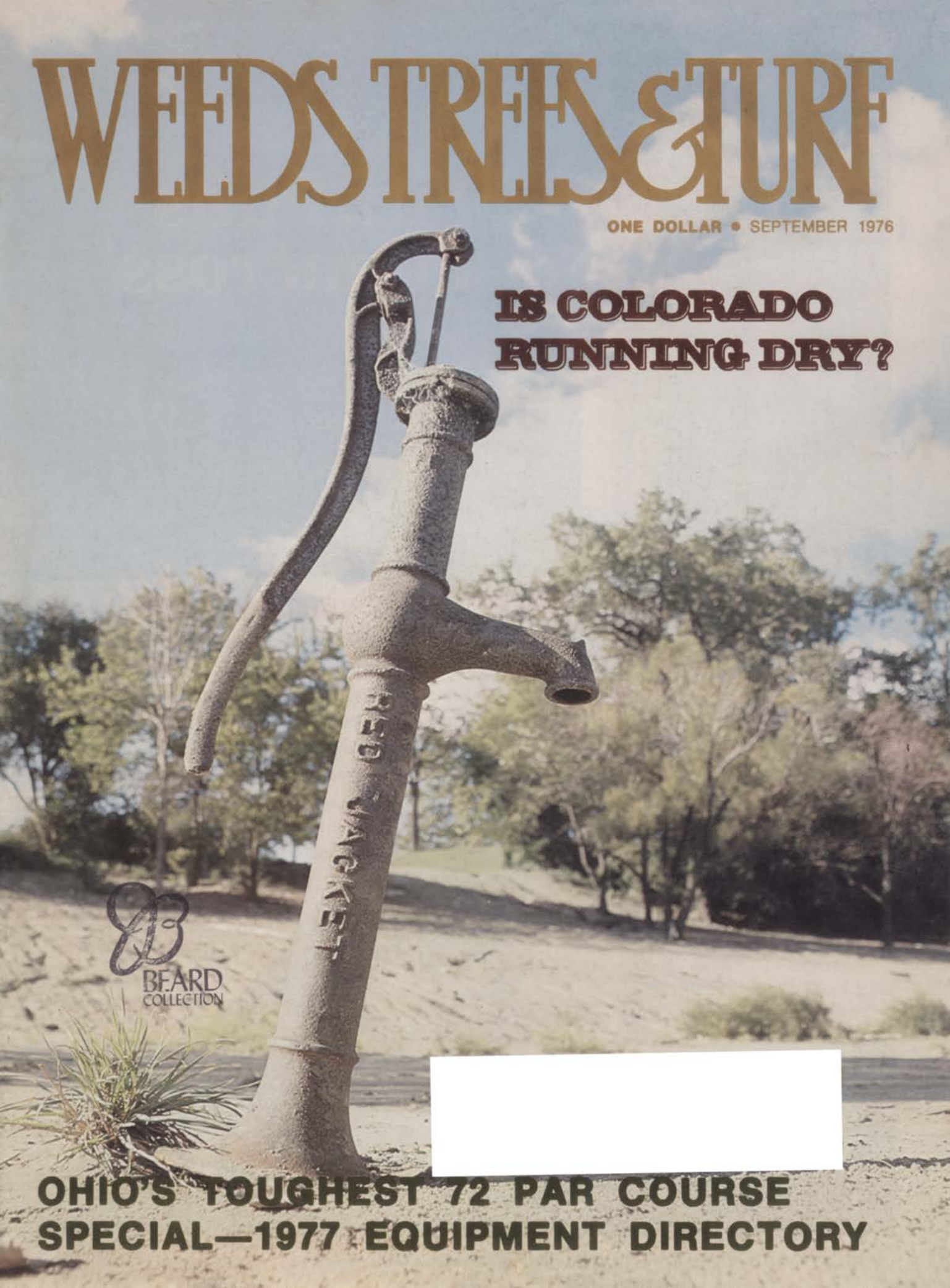


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WEEDS TREES & TURF®

September 1976, Vol. 15, No. 9

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# New girl on the block

Meet Gail Hogan, your new editor for WEEDS TREES & TURF.

A native of Marblehead, Massachusetts, Gail was graduated from the University of Massachusetts with a BA in journalism and has done graduate work at Cleveland State University.

She has held numerous positions in advertising and public relations and has worked as a reporter for three Cleveland area newspapers. Most recently she was editor for Chessie System, Inc., Cleveland.

New to the green industries, Gail believes her biggest asset will be you, the readers. "I want to know what interests our readers, what they want covered and what they need to know to keep abreast of their exciting and innovative industries. With their help, WEEDS TREES & TURF will continue to be a viable and necessary information source."

Gail also plans more features about people. "People are the industry," she says. "They are what it's all about." She hopes to meet many readers as she travels throughout the country gathering material for WEEDS TREES & TURF.

Gail lives in North Ridgeville, Ohio, with her husband, Mike, and two children, Sean, 18 months, and Jennifer, nine.

# INVENTIVE IDEA speeds application

Special spraying jobs call for special equipment, and that in a nutshell is the reason Ted Weidenfeller designed a new spray boom that's simple, yet effective. It's one of those, "Gee, I wish I'd thought of that" ideas.

Weidenfeller, who's sales manager of Agricultural Services, Inc., in Minneapolis, points out that for spraying open areas such as parking lots, storage areas, sub-stations and the like, a different type of boom is needed. A hand or orchard-type sprayer is great for spot treatment. In areas filled with obstructions, OC or flood tips fill the bill.

However, Weidenfeller discovered that a boom for open areas, one that would treat large areas accurately and efficiently without leaving untreated strips and misses, and one man could handle with ease day after day, just wasn't available.

So, he set about designing his own. He came up with what he calls the "T type boom", a rig that applies a 6-foot wide spray strip at a rate of about 50 gallons per acre.

His T type boom is equipped with a quick-coupler, a good shut-off (a 31 gun jet), and is fabricated from ¾-inch aluminum piping.

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If you have an Inventive Idea, send it to the Editor, WEEDS TREES & TURF, 9800 Detroit Ave., Cleveland, Ohio 44102. We will pay $25 for each idea printed.



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# Government News

EPA Administrator Russell E. Train has notified 4,100 pesticide producers, formulators, distributors and registrants that EPA will soon be initiating an auditing program to examine selected toxicity test reports. He said it was the industry's responsibility to insure that all data submitted in support of registration are complete, accurate and valid.

The federal quarantine for imported fire ant has been amended to extend regulated areas in parts of Alabama, Arkansas, Georgia, Mississippi, North Carolina, South Carolina, and Texas. James O. Lee, deputy administrator of the USDA's Animal and Plant Health Inspection Service, APHIS, said this action was necessary because the imported fire ant has spread to new areas in the seven states. Pest-risk articles---such as soil and used soil-moving equipment---must be inspected, treated if necessary, and certified free of pests by APHIS or state agricultural inspectors. The amendment puts movement restrictions for the first time on all or part of the following counties: Colbert and Lauderdale, Ala.; Calhoun and Miller, Ark.; Barrow, Burke, Clarke, Forsyth, Greene, and McDuffie, Ga.; Lenoir, N. C.; McCormick and Newberry, S.C.; Bee, Bell, Blanco, Bowie, Camp, Falls, Freestone, Gillespie, Jim Wells, Milam and Refugio, Tex.

Scientists at the Georgia Institute of Technology will study solar heat collectors and storage systems under a cooperative agreement with the USDA. Under the agreement terms, the Georgia scientists will have one year and $39,499 to design, build and evaluate several solar collector and storage systems using a rock-bed system to store heat for use in heating greenhouses, farm buildings or rural residences. USDA's Agricultural Research Service will sponsor the study with funds from the Energy Research and Development Administration.

EPA has asked for ideas and comments from the public on ways to address the problem posed by contamination of drinking water supplies by organic chemicals. In an Advance Notice of Proposed Rulemaking, EPA says interested people should submit written data, views or arguments to the Agency's Office of Water Supply (WH-550), Criteria and Standards Division, 401 M. Street, SW., Washington, D. C. 20460.

Scientists at Washington State University's Irrigated Agriculture Research and Extension Center, Prosser, will seek controls for the black vine weevil, a serious grape pest, under a cooperative agreement with the U. S. Department of Agriculture. USDA's Agriculture Research Service (ARS) will provide $5,000 for the 18-month study. The scientists plan to evaluate the effectiveness of carbofuran on the weevils. Several treatments using various strengths of carbofuran will be tested. Samples of treated grapes, juice and pomace will be taken for later evaluation for residues and the effects of flavor. Dr. W. W. Cone, an entomologist at the university, is the principal investigator and Billy A. Butt, ARS entomologist, Yakima, Wash., will represent ARS.

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# WATER: COLORADO'S SHRINKING COMMODITY

## Demands grow, costs soar and availability dwindles

by eloise ross

"In this country, water is it," explains Dr. J. D. Butler, a full professor of horticulture at Colorado State University (CSU), Ft. Collins. "We talk about water first out here. If you don't have it, you don't have anything. If you don't have the water, you don't do it."

This precious commodity of the semi-arid red stone state has always been a highly volatile and serious issue. Never at a premium in Colorado's history, Dr. Butler says, "In all those movies of the West, you saw men fighting over horses but they were really fighting over water." And the fight continues today.

Colorado's scenic wonder and temperate climate have lured many new people who create a heightening demand upon its water supply. As competition increases for water for food, irrigation, lawns, personal and home uses, new provisions and tactics appear critical.

Currently, almost 42 percent of Denver's municipal and industrial supply enriches the lawns of city residents, according to a 1972 study by Woodward and Dr. Butler says costs for maintaining an 18-hole golf course with water runs between $30,000 to $40,000 a year.

The irony is that homeowners who demand lush carpets of lawn are the same people who are creating a water shortage that will make the cost of water prohibitive for turf.

It is not likely that irrigation will change much as a means to replenish agriculture and shrinking turf and croplands except for some grass adaptation but priorities may be necessary for proper use of water.

According to Donald L. Miles, extension irrigation engineer for CSU, agriculture, Colorado's largest industry, has shrunk from a 1970 all time high acreage of 3,380,000 acres to the present 3,100,000 acres. The loss is primarily to subdivision development.

With an increasing flow of new residents, Denver and eastern Colorado are handling greater demands upon water tracts set aside as many as 100 years ago. Denver now imports water from the western slope but has tapped nearly all its available sources. There are no water districts in the state and metering is done in only a few areas.

Individuals and sodfarmers can get water rights, the rights to use one acre flood a year or roughly 327,000 gallons of water. While giving the person the right to use water, water rights don't provide water. That is negotiated through other channels.

The individual's water right is owned by the city which levies rates as it is charged.

Prices for water rights may vary from $2500 in Denver, $600 to $2500 on the eastern sector to a very low price in the water rich western territory, Miles says. Denver homeowners may pay up to $10,000 a month for treated water while sodfarmers are charged alike and have a percentage of the cost of water. "It's mostly a matter of who can pay the most," Miles notes. "People pay more to have a little green around them than agriculture thinks it's worth."

Continued on page 14

Above—*This fairy ring fungus offers a challenge to Colorado turf farmers and developers of drought-resistant grasses. Fungi such as this drain precious water from the turf.*

Left—*Experimental Kentucky bluegrasses may provide much needed drought-resistant strains.*

# Demands grow, costs soar

Continued from page 12

Some landowners draw water from wells and have faced more restrictions for this practice. In 1965 small domestic wells were granted an exemption from registration if they pumped up to 50 gallons a minute for use in domestic, livestock and irrigation on no more than one acre of land. Today permits for wells are only granted in areas where water hasn't been appropriated for mass use or where the wells don't interfere with existing water rights. It is nearly impossible to get permission for drilling a new well today and some wells can only serve domestic, not irrigation, needs.

Such legislation reaches some segments of the problem but leaves others uncharted. Miles points to unorthodox housing construction as a major problem. "Many of the areas where subdivisions are placed are going on extremely salty soil," he says. "This as much as anything I see as limiting the use of water for lawn purposes."

Lawn irrigation in such places brightens lawns while burning out the water. "If the grass uses three quarters of the water, the other quarter contains all the salt," he explains. It percolates through the earth and "is four times as salty as that (water) you put on." De-salting is an alternative although costs make it prohibitive, Miles stresses.

# Less thirsty grasses hold possible solution

If and when Colorado sodgrowers line up for tank rationing of water for their crops, turf management studies at Colorado State University (CSU) in Ft. Collins may provide knowledge to ease the situation.

It is hoped these studies will supply grasses that can live with lower quality of water of effluent, run off wells or even brackish colored water.

As part of the PERC (Plant Environmental Research Center) of the Department of Horticulture at CSU, two open plots resembling football fields are the carefully controlled carpet homes of experimental Kentucky bluegrasses. Some 30 varieties grow there in striped patterned sections measuring 10 feet by 10 feet each.

Now in the second year, the turf plots support Adelphi, Nugget, Merion, Code 95, Arboretum, Chem blue, fescues, perennial ryegrasses, Prado, Park and Windsor grasses, among others.

Dr. J. D. Butler, a full professor of horticulture at CSU, is applying both anatomical and physiological research in the Kentucky bluegrass studies and is borrowing his results from his ongoing altitude studies. He also is experimenting with turfgrass from the western slope and plains of Colorado.

Many factors were judged before choosing the grasses to reflect both the soil of the plot areas and Colorado's soil problems. Types of soils and grasses were major points.

In considering these turfgrasses, Dr. Butler stressed that uniform, good soil is difficult to find in Colorado due to disturbances caused by construction and use of low quality land. Colorado soils often differ in water storage and availability. Poorer quality soils often show a very slow rate of infiltration while

The question is whether building should be permitted on such land and if lawn irrigation should be cut back, if not outlawed, there. Colorado's natural salts are only compounded as a problem because of such practices.

As a step in the right direction, subdividing is now illegal on parcels smaller than 32 acres unless water and sewage services are already available from the outside.

Other alternatives are allowing lawn irrigation only on alternate days for houses having even or odd street numbers. Some cities are using re-used agricultural water. There even is a greater likelihood that dual water systems may spring up in cities with pipes transporting high quality water into the house for tubs, showers, wash basins and the kitchen sink. A second pipe would bring in reclaimed sewage water for flushing toilets, cars and lawn irrigation. The reclaimed water would be biologically pure but would have a rather high concentration of dissolved salts, Miles speculates.

Miles also views more responsible use of landscaping in housing and population limits and distribution in Colorado as a means to better control for using water.

At present, however, re-developing turfgrasses and re-educating the population seem the most workable alternatives. Fancier and more efficient equipment won't help. There are no plans for allocation of water but Dr. Butler believes economics may well dictate higher priorities of water to food production, slurry transportation of coal and practices such as oil shale processing.

The issue of water is very political, though vital. Legislators shy away from it since an appointment to the Executive Committee of the Joint Water Committee is often followed by their ouster by voters in the next election. Since Colorado's legislature provides the governor the option of delegating topics for the even numbered years, it is not likely that the water issue will appear in 1976. Even though, "water is it," perhaps too much it.

---

turfgrasses having good root systems add to the best rate of water stored in the lower soil levels.

Where drought is critical, the types of grasses are important. Only a few grasses are able to grow where heavy droughts are severe or where it is impractical or impossible to irrigate. But these are often low quality turfgrasses and may not stay drought tolerant without some irrigation beyond average rainfall. A turfgrass' uses may also be limited by the amount of traffic it can endure.

While drier areas prize a grass' ability to remain alive during drought above its ability to stay green into dry periods, less arid regions place more value upon the grass that stays green into dry periods. In studying the grasses, criteria of the grass' tendencies to stay green into drought, and if its foliage dessicates, dies or returns to normal growth with enough rainfall are evaluated.

Colorado does have hearty native turfgrasses such as grama and buffalograss but these are judged undesirable because they turn brown and don't give good ground cover. The new Kentucky bluegrasses should provide good cover, color and drought resistance.

The CSU bluegrasses were also chosen for their tolerance of eight to 15 inches of rainfall a year (15 inches being a normal year), how well they stayed green in dry times, if they formed a thick turf, and their texture and overall performance, qualities Dr. Butler and his research team of Peter Dernoeden and Mohammed Ali Harivandi have continued into the program.

Research by Dernoeden showed common bluegrasses are the most drought resistant and that these tolerant cultivars grow fairly quickly. Drought tolerance also figured into stomata size and location and the length of bulliform cells.

Other studies Dernoeden conducted note that mowing can affect drought tolerance. Since more water tends to be applied as if in compensation for low mowing, any good features of turfgrasses are cancelled. Half of the CSU plots at the horticulture center are trimmed to three quarters of an inch while the rest are cut to one and one-half inch.

In handling the project, the researchers also experiment with the thatch and soil fertility. Thatch is important since it may drive water into useless runoff. The new varieties should help prevent this if they have deep roots.

Although Colorado isn't alone in its water problem since Arizona and California also contend with similar situations, the state does have special problems due to its altitude, cooler nights, light intensity, soil salts and high alkaline content. The effects of soil salts and salty water are now being researched by Harivandi at two Denver golf courses in another project which will affect future Colorado turfgrasses.

Although no specific target date is set for the study, when it ends original grasses, not hybrids or mutations will probably go into commercial production. Production is expected by 1981.

# *Where have all the flowers gone?*

Some flowering plants may be headed for the fate of the passenger pigeon: extinction. The cause, say biologists at Notre Dame, is Man's alteration of his environment.

A recent study by scientists at Notre Dame University suggests that certain flowering plants may become casualties of "progress."

"More and more flowering plants are falling into the categories of threatened and endangered," said Professor Theodore J. Crovello, chairman of Notre Dame's Department of Biology. "Threatened" is a less severe classification than "endangered."

"As Man moves into new areas and alters the environment, by draining areas for farming, for example, flowers decline and disappear. Orchids that grew in Indiana not many years ago are gone."

The conclusion that certain flowers are disappearing is based on a three-year study that used an IBM computer to analyze 35,000 botanical specimens collected in North America over the last 180 years. The specimens were from collections at 75 museums and universities across the country.

"Our study is helping determine the status of certain plants," said Dr. Crovello. "Research, for example, indicates that relatives of the mustard are disappearing. On the other hand, we might find that a species thought to be extinct or disappearing had been mislabeled in some collections; or hadn't been collected for some years; or exists in only a few collections, but is still thriving in the wild."

The Notre Dame researchers have supplied endangered species information to scientists in Ohio studying plants of the mustard family there. Preliminary research indicates that while some plant species in Ohio are threatened and endangered, others can be removed from the list. Analysis of certain "spring flora" such as various types of spring watercress shows some are disappearing while others are plentiful. Another part of the study, the Flora Indiana Project (FLIP), is focuses on the 2,500 different species of flowers found in Indiana.

The biologists built their files of information by entering names of plants, when and where found, environmental conditions at time of collection, and other information. The IBM System/370 Model 158 produces reports by states and counties showing numbers of plants gathered by century and decade since 1800.

"As you look back into history, collectors' records become sketchy," said Dr. Crovello. "A botanist might simply have noted 'picked up by the Missouri River' or 'collected in Indiana territory' and just recorded the year. Today, researchers provide more accurate records, sometimes even the street address. Still, we see plants shrinking in geographic distribution over time — the indication of an endangered species.

"This is more than just an aesthetic loss: Man benefits significantly from certain plant species, particularly those that supply important medicines. Yet most plants have not even begun to be analyzed for products useful to people. Who knows what potentially valuable chemicals we are losing with every species that becomes extinct.

"Urbanization and other activities of Man can irrevocably alter the environment, and this forces us to set priorities."

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# Protect irreplaceable trees from lightning destruction

A blinding flash. An ear-piercing crack. Suddenly, one of your most valuable trees is destroyed by lightning — one of the most destructive forces of nature. In its 70-year history, The Davey Tree Expert Company, Kent, Ohio, has seen the results of countless lightning strikes. And, again this year summer electrical storms have taken their toll of hundreds of trees throughout the country.

According to John W. Joy, Davey vice president, "Tree owners can protect their valued trees by turning them into giant lightning rods." The cost of installing lightning protection is only a fraction of what a fine tree may be worth in terms of actual dollars. Remember, a house can be replaced in every detail, but the grand old trees around it . . . never.

Although it is not possible to prevent a tree from being struck by lightning, it is possible to equip a tree so that lightning will be conducted harmlessly into the soil.

Here is how professionals install a lightning protection system: A copper cable is attached from the highest parts of the tree to the ground, running down the trunk in as nearly a straight line as possible. Branch conductors also are run from the main limbs in the upper part of the tree and attached to the main truck connector. (See illustrations.)

Ground cables, buried in narrow trenches, are attached to the main conductor and extend from the base of the tree like the spokes of a wheel. A copper rod, attached to the ground cable, is driven into the ground at the end of each trench. The purpose of the spoke-like ground connection is to pick up or distribute the current beyond and below the roots which are as sensitive to injury as the top of the tree.

Within a clump of trees, terminals should be attached to one or more of the tallest trees in the group. Also, if a tree is close to and taller than your home, permitting the lightning to follow the tree-grounded route might avoid a strike on the house.

Joy pointed out that trees are constantly growing upward and outward each year and changes occur in their structure, character and physical being. Therefore, lightning protection installations should be checked every four or five years.

For lightning protection a special conductor cable is attached to the highest parts of the tree (left) and runs along major branches down the tree trunk. The ground system (right) consists of an extension of the main trunk cable to a point beyond the main root system and is attached to a rod driven to the required depth.

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# People on the Move

W. H. Bricker, president of **Diamond Shamrock Corporation,** has been elected to succeed C. A. Cash as chief executive officer. Cash will continue as chairman of the board. Bricker will be chief operating officer as well as chief executive. Cash has been with the company since 1935. He has held directorships in the Diamond Shamrock Corporation, American Petroleum Institute, First National Bank of Amarillo, and Texas Mid-Continent Oil and Gas Association. Bricker joined the company in 1969 and has held directorships in the Diamond Shamrock Corporation, Society National Bank of Cleveland, National Agricultural Chemicals Association and the Samuel Moore & Co. He is a member of the John Carroll University Board of Trustees, Greater Cleveland Growth Association, and Musical Arts Association.

Ed Felton has been promoted to Western zone manager for **Charles Machine Works, Inc.,** manufacturer of Ditch Witch construction equipment. He will be responsible for Hawaii, Alaska, 13 Western and Midwestern states and western Canada. Felton has been a district representative in the upper Midwest and on the West Coast.

**Ciba-Geigy** announces some new field sales representatives in the Agricultural Division: Jim Fast has a territory covering 18 counties in Missouri, nine counties in Kansas and three in Oklahoma; John Taylor serves 17 counties in northern Mississippi; former administrative secretary Courtenay Benbow Forrester covers 19 counties in North Carolina and four in Virginia; Cheryl Lynn English is responsible for five Illinois counties, and Comfort "Bisi" Komolafe serves 10 counties in western New York.

**Felton**

**Lehman**

**McKenney**

**Smith**

**ProTurf** has named Doug Smith and Jeff McKenny technical representatives for this Scott's division. Smith has held a similar position in Louisville, Ken., for four years and now takes over the southwestern Ohio territory. McKenney has been an instructor in ProTurf's Professional Turf Institute and now is tech rep in the newly created sales territory encompassing eastern North Carolina.

The **Pennsylvania Turfgrass Council, Inc.** has released its 1976 officers' names: President, Arthur D. Wick; Vice President, C. William Black; Treasurer, David M. Boyd, Jr.; and Executive Director, Fred V. Grau. On the Board of Directors are R. W. Marberger, Jr., Don Pakkala, George J. Morgan, Henry F. Meinert, Jr., Arthur Czarnecki, John M. Bodock, John A. Segui, Bartholomew Cornali, John P. S. O'Connor, Clyde E. Lyons, C. William Black and Arthur D. Wick.

Jim Wickham is the district manager for the Texas and Oklahoma areas of the **Moody Sprinkler Co., Inc.** He has much experience in irrigation and contracting.

Ronald A. Stinson was transferred to Agricultural Sales at **Thompson-Hayward Chemical Company.** He is responsible for agricultural chemicals sales in the Western Oregon territory.

Rowland R. (Dick) Lehman is filling the new position of vice president of marketing **at Wisconsin Marine, Inc.** of Lake Mills, Wis. Addition of Bob-Cat Commercial Mowers and expansion of the Bob-Cat Snow Thrower line prompted creation of the position. Lehman, who has an extensive background in marketing power lawn equipment, is responsible for developing and administering a worldwide market for Bob-Cat outdoor power products.

The **ProTurf Division of O. M. Scott & Sons** has made regional manager changes and formed a new region in the South: Ted Mulcahey is the new Central Regional Manager, serving Ohio, Michigan, West Virginia, Southern Indiana and Northern Kentucky. Mike Kolb is responsible for the newly aligned Southern Region, including Texas, Louisiana, Mississippi, Alabama, Florida and islands in that area. Mid-South Regional Manager Dick Spitler, manages Virginia, North Carolina, South Carolina, Georgia, Arkansas, Tennessee, northern Mississippi and northern Alabama.

Promotions and additions in the **Elanco Products Company,** agricultural marketing division of Eli Lilly and Company, include Becky J. Tilton, E. Sue Hansford and Nicolas R. Herbert, agricultural chemicals sales trainees; David R. Finley and Robert L. Fowler, sales representatives in the Peoria sales district; and a recent addition, Edward J. Sangster, sales representative in Columbia, Missouri.

Milton R. Shapiro was named assistant corporate controller of **Beker Industries Corp.** He is a certified public accountant and has a degree in accounting from Rutgers University.

# There was no sleeping on the job in the creation of a MAN MADE bluegrass!

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Canadian Inquiries: **National-NK Seeds Ltd.**, Box 485, Kitchener, Ont. • **Rothwell Seeds Ltd.**, Box 511, Lindsay, Ont.
Other International Inquiries: **Northrup, King & Co., Inc.**, Minneapolis, Minn. 55413

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Technical tests being conducted on typical aerial lift unit.

# New company tests aerial lifts

A growing number of accidents are being recorded by users of aerial lift equipment. Nine of every ten such mishaps come about because of mechanical failure. Seldom does the insulation which is designed to protect the operator fail when a high voltage line is accidently contacted. Insulation is more likely to be fail-safe than the mechanical phases of the unit.

Such are the findings of a new company known as American Safety Test at Morrow, Georgia, formed only for testing and inspecting aerial lift equipment. The units, known by such names as bucket trucks, cherry pickers or aerial lifts, need regular checks and service. Russell W. Tupper and Warren E. Tupper founders of the company, have more than 35 years of experience in working with aerial lift units.

They report owners and operators are almost totally concerned with the insulated components of such equipment and many are unaware of the fact that mechanical failure is responsible for more accidents.

Their new safety testing and inspection program naturally includes what is commonly known as the dielectric test for both insulated aerial lift components and tools. This is basic, however, they go beyond this with five other major steps — one of which is a loading and stability test.

A third test is the complete analysis of hydraulic oil. Many times after a machine has been in service for an extended period or has been used under stress, the oil contains excess moisture, acid or picks up foreign materials which affect the reliability of the aerial equipment.

Another step and probably the most critical in preventing accidents and reducing costly repairs, is a complete professional visual and operational check of the total aerial lift, accessories, tools and safety equipment.

Other steps include a verbal question and answer period with the operator and crew which confines discussions to safety instructions and proper operaton of the equipment. It is important to point out that during these tests and inspections, the inspectors do not in any way convey the negative items to be reported to the operating crew or any other personnel present at the time of the inspection.

The next and last step is a practical and easy to understand report which is given the owners. This is a confidential report and is broken down into separate listings for safety hazards and mechanical discrepancies.

Safety hazards need to be corrected immediately according to AST. Mechanical discrepancies not considered hazardous immediately can be corrected at the regularly scheduled service. The AST officials also point out that the company does not make mechanical repairs or in any way service equipment. Theirs is a test service only — geared to spot potential problems and prevent accidents.

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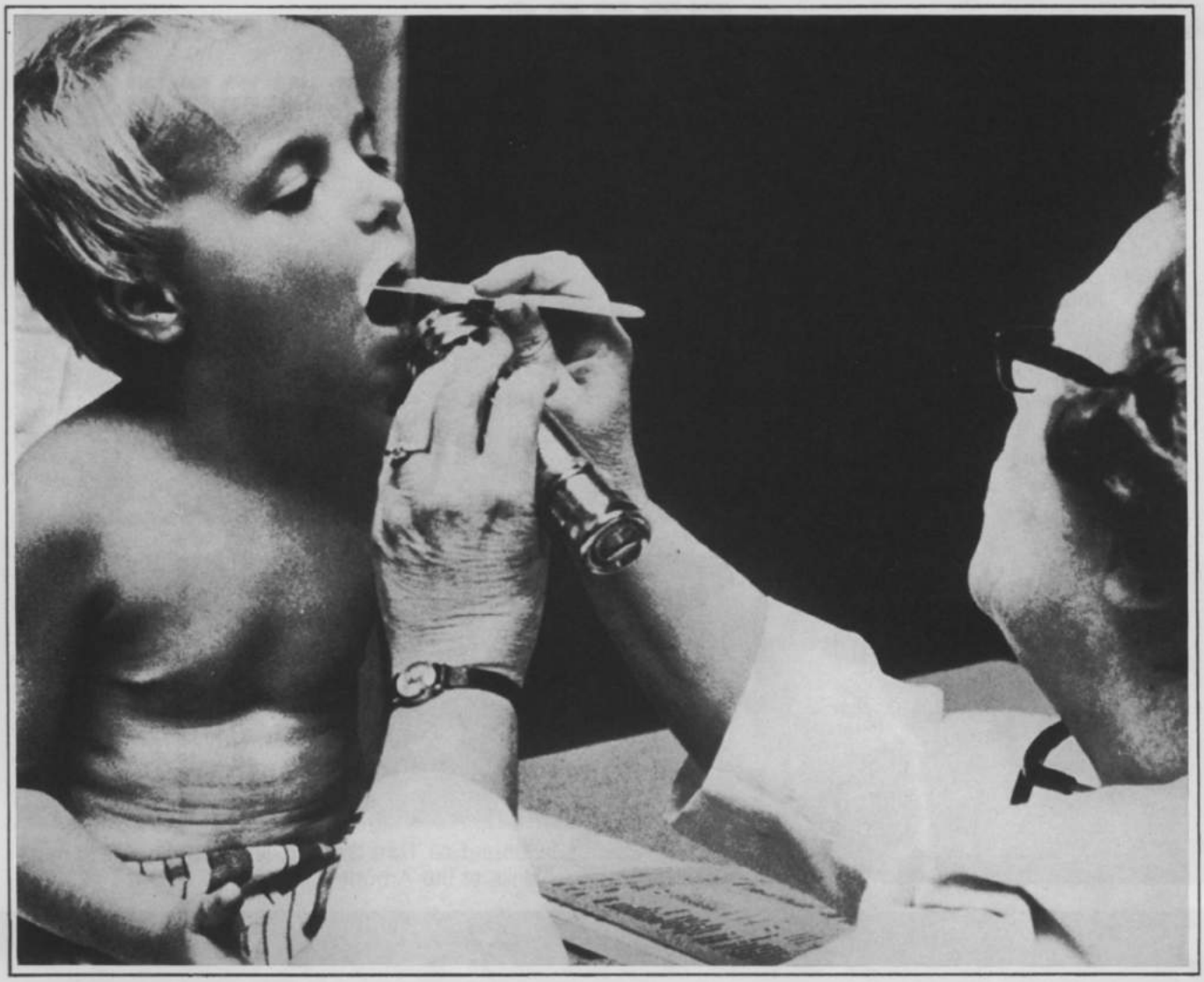

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# The focus was on TREES . . . AND MORE TREES

Crowds watch spellbound as Tom Gosnell, left, and other field men demonstrate their skills at the Arborists' Jamboree.

"Trees Form an Archway to the Future" was the theme and St. Louis was the setting as nearly 1000 members and friends of the International Society of Arboriculture gathered Aug. 8-11 to talk trees.

It was the 52nd annual convention of the group, formerly called the International Shade Tree Conference. Why the new name? "We wanted to have a name that more closely reflected our purposes of promoting and improving the practice of professional arboriculture," explained Cal Bundy, the group's exuberant executive secretary.

But the name change wasn't all that was new. This year there was more emphasis on field techniques. "Too often when professional organizations meet to discuss new products and practices only the owners and managers are in attendance. We wanted to reach the field people too," Bundy explained.

A reflection of this philosophy and a highlight of the conference was the first International Arborists Jamboree held at the beautiful Missouri Botanical Gardens.

Here, the group's members and families watched spellbound as the world's top field men demonstrated their skills in tree work competitions, including a western-style tree climb won by Tom Gosnell of Santa Barbara, currently the world's champion tree climber.

Outstanding educational programs with an emphasis on trees in the modern urban environment, 33 commercial exhibits and 12 educational exhibits formed the basis of this successful conference. WEEDS TREES & TURF will bring you more on the educational programs in a future issue.

Newly elected officers include: Hyland R. Johns Jr., Willow Grove, Pa., president; Yvon Fournier, Trois Rivieres, Quebec, president-elect; Roy Gustin Jr., Silver Spring, Md., vice president; and Dan Neely, Urbana, Ill., editor.

Recognition awards went to Dr. T. T. Kozlowski, Department of Forestry at the University of Wisconsin, Dr. Cynthia Wescott, retired plant entomologist, Croton-on-Hudson, N.Y., and Edgar G. Rex, retired plant pathologist, New Tripoli, Pa.


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## FROM THE CAMPUS

# Mulching made easy

The virtues of mulches are more than skin deep, according to Dr. Charles Dunham, extension horticulturist at the University of Delaware. Mulching can control weeds, conserve water and protect plants, as well as add beauty through a variety of available materials.

One benefit provided by mulches is water conservation. They cut evaporation losses by retaining moisture and capture water that would ordinarily run off in hard showers. Plants are protected from splashing mud and dirt that can be a problem to both vegetables and flowers.

There is a diversity of possible mulching materials, mostly organic but also inorganic, such as aluminum foil which is helpful in protecting plants from insect damage. Dunham claims that as long as water can penetrate and the mulch does not pack to exclude air from the soil it should work. Organic mulches break down at different rates and enrich the soil in the process, but if there is a high ratio of carbon to nitrogen a temporary nitrogen shortage can result, necessitating the addition of extra nitrogen. Sawdust and straw will do this.

For flower beds, house and patio, appearance and cost are probably important factors in choosing a mulch. There are some readily available that will enhance the looks of flowers and shrubs.

Bark and wood chips are ideal mulches especially for shrubs and ground covers. They are attractive and long lasting. Use coarser grades for trees and shrubs and finer, smaller sizes for flowers and ground covers. Four to six inches of mulch is needed for long lasting weed control.

Licorice root sold as Right Dress is one of the best mulches for flower beds.

Cocoa bean hulls are available in some areas. These tend to pack so should not be used more than two inches deep. They also are sometimes toxic to azaleas. However, for many plants they are satisfactory and attractive.

Grass clippings are one of the cheapest and most available mulches. The problem with grass clippings is that used fresh they tend to rot and pack tightly, warns Dunham. This can be overcome by drying the grass first or stirring repeatedly until dry after they are in place. Grass clippings are probably best in the vegetable garden. Straw is also excellent in the garden.

Pine needles are an attractive mulch especially good for azaleas.

# Midges for weed control

University of Idaho scientists have released 25,000 insects in the hope they will destroy some plants.

The insects are skeleton weed midges and are roughly the size of fruit flies. The university has imported thousands of them from the U.S. Department of Agriculture's Biological Weed Control Laboratory at Albany, Cal. to combat skeleton weed, a range pest that competes with forage grasses and crops.

"A few years ago there were just scattered skeleton weed plants found in the Payette River canyons around Banks and Garden Valley," said Dr. William Barr, professor of entomology at the university. "Since then, that small population has mushroomed out all over the canyons between Banks and Lowman and even over into the Stanley Basin."

"The steep terrain in the canyons makes chemical control of skeleton weed dangerous and expensive," said Barr, "We brought in the midges because they have a definite potential for biological control and they're easy to rear. We don't really expect the insects to control the weed completely. But our plant scientists are working with a strain of rust disease that attacks skeleton weed specifically, and we hope that a combination of the insects and the rust will provide some measure of control."


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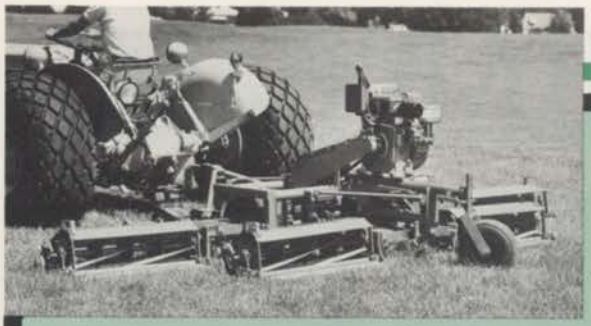
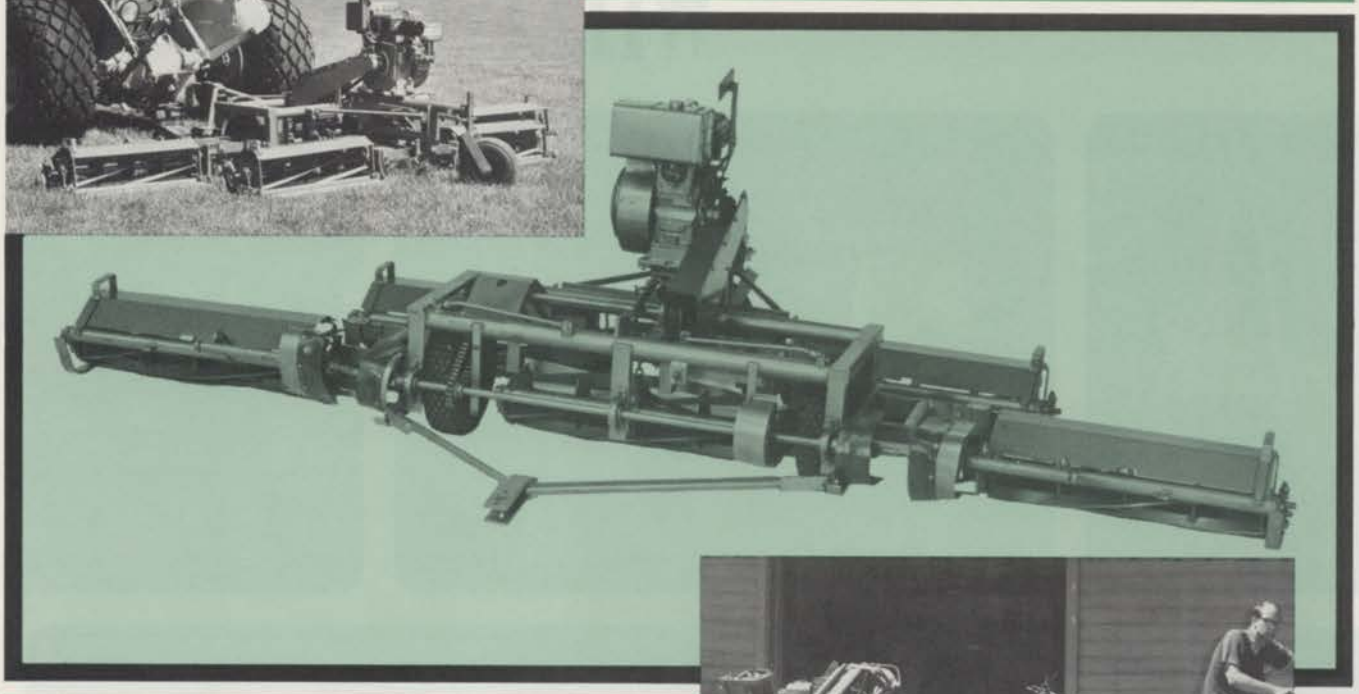
# 1977 MANAGERS GUIDE TO EQUIPMENT AND SUPPLIES





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National Mower's Power Quint is designed to meet the demands of today's economy. It is priced less than any comparable unit. It is a simple, functional machine without unnecessary levers, gadgets and chrome decorations. It is made so as many parts as possible are standard, off-the-shelf items available from the user's local sources.

**Power Quint was deliberately designed to provide its own power source. A feature that allows the unit to be pulled by almost any size tractor with or without PTO.**

**FEATURES:**

- ☐ Five, powered, free-floating reels cut an 11½ foot swath without skip or scalping.
- ☐ Wings fold to 68" for easy transport and storage.
- ☐ With no need for outrigger wheels, cutting units reach out over curbs, golf course traps and up to obstruction to eliminate trimming.
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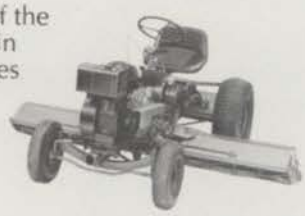
National's 84" Triplex is one of the best hill-climbing, rough terrain machines made today. Operates as efficiently on an 83 per cent grade as on a level. Its no-nonsense design makes maintenance easier and faster.



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# 1977 Managers Guide to Equipment and Supplies

Making the right decision when it's time to purchase equipment and supplies is one of your most important responsibilities as a manager in the Green Industry.

Wise initial selection, correct accounting procedures for depreciation, effective preventive maintenance and proper major maintenance when needed can save you countless dollars.

To help you with your equipment and supplies selection, WEEDS TREES & TURF presents this Green Industry Managers Guide to Equipment and Supplies.

The Guide has two sections. Manufacturers are listed in alphabetical order along with their equipment and supplies in the first section with advertisers in bold type. In the second section, products are grouped alphabetically with the manufacturers listed below.

Because manufacturers add and delete product lines, change names and are generally never static, omissions of certain manufacturers and/or product lines are unavoidable. Your comments and suggestions are welcomed to help us continue to produce and improve this important service.

## A

Ace Pump Corp., 1650 Channel Ave., Memphis, Tenn. 38113
Pumps

Advanced Drainage Systems, 3300 Riverside Dr., Columbus, Ohio 43221
Corrugated plastic drainage tubing

Adventure Line Mfg. Co., 3333 Main St., Parsons, Kansas 67357
Astro hook, crane/ladder, truck mtd., hydraulic
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AgTronics Mfg. Co., 1560 State St., Barstow, Calif. 92311
Soil moisture meter

Air-Lec Industries, Inc., Outdoor Product Div., 3306 Commercial Ave., Madison, Wisconsin 53714
Aquatic weed harvester

Air Rake Mfg. Corp., 5 Springfield St., Chicopee, Massachusetts 01013.
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Irrigation pipe

Allis-Chalmers Corp, Box 512, Milwaukee, Wisconsin 53201
Model 715 backhoe-loader, Allis-Chalmers 65 hp gasoline engine
Model 816 backhoe-loader, Perkins diesel engine 83 hp
Model 540 articulated loader, 57 hp gasoline or diesel
Engines (diesel)
Fork lifts & attachments
Generators
Harrow (spring-toothed)
Leaf blowers
Materials (handling)
Mowers (rotary, sickle bar)
Park equipment
Centrifugal pumps
Saws (chain, gasoline)
Hopper-type seeders
Snow thrower
Tractor (from 8-151 and up hp)
Tractor (crawlers)

**Amchem Products, Inc.,** Brookside Avenue, Ambler, Pennsylvania 19002
Meter Miser, liquid spreader gives precision application of Weedone liquid herbicide products without the need for calibration
Directa-Spray, sprayer end unit.

**American Arborist Supplies,** Concord Industrial Park, Concordville, Pa. 19331
Arborist supplies
Chippers

American Excelsior Corp., 850 Ave. H, East Arlington, Tex. 76010
Erosion control products
Soil retention products

American Hose & Reel Co., P.O. Box 639, Marland, Okla. 74644
Thermoplastic spray hose with working pressure of 250, 400 and 800 PSI; ¼, ⅜, ½, ¾-inch sizes
Fertilizer applicator tubing; ¼, ⅜, ½, ¾-inch sizes
Hose reels; small, 300 ft., ½-inch hose, 1000 P.W.P.; large, 300 ft., ¾-inch; adjustable drag

American Lincoln Corp., 518 S. St. Clair, Toledo, Ohio
Welders

American Optical Corp., 14 Mechanic St., Southbridge, Mass.
Respirators, protects against harmful, highly toxic sprays, dusts and vapors in insecticides, fertilizers, etc.
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Hearing protectors, protects hearing from damaging or irritating noises of tractors, sprayers, power saws, etc.

**Ametek, Inc.,** 502 Indiana Ave., Sheboygan, Wisc. 53801
Miscellaneous irrigation
Underground enclosures

A.M.F. Lawn and Garden, 3811 McDonald Ave., Des Moines, Iowa 50302
Edgers
Leaf blowers
Mowers (reel, rotary, replacement parts)
Mulch blowers
Snow thrower
Sweepers (lawn)
Tillers
Tractors (8-10 hp)
Lawn vacuums

Amoco Chemicals Corp., Industrial Products Div.,1530

Commerce Dr., Stow, Ohio 44224
Polyethylene pipe and fittings for irrigation
PVC pipe and fittings for irrigation
Corrugated plastic drainage tubing

Anchor Post Products, Inc., 6500 Eastern Ave., Baltimore, Maryland 21224.
Fences and gates

Andrasko Engineering Co., P.O. Box 4633, Santa Barbara, Calif. 93103
The Meter Matic, fertilizer injector for irrigation systems

**A.O.A. Research & Development, Inc.,** P.O. Box 6081C, Orlando, Fla. 32803
Underwater weed cutter (manually operated)

Aqua-Dial, P.O. Box 1325 Newport Beach, Calif. 92624
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Automatic valves, hydraulic and electric, remote control
Automatic controllers
Sprinklers, gear driven, pop up, vandal resistant, lawn and garden

Aquamarine Corp., Box 616, Waukesha, Wisc. 53186
Aquatic weed harvester

Aqua-Mech Co., 2609 Cedar Springs Rd., Dallas, Tex. 75201
Aqua Mech, conversion kit from manual valve and key to automatic timed heads

Aquanautics, Inc., 1246 Birchwood Dr., Sunnyvale, Calif. 94086
Weedrake, underwater air boat

Aquatic Controls Corp., 1203 E. Main, Waukesha, Wisc. 53186
Weedrake, underwater

Aquatrols Corp. of America, 1400 Suckle Hwy., Pennsauken, N.J. 08110
Chemicals for turf management

Arctic Mizer Mfrs., Inc., 2116 E. Norse Ave., Cudahy, Wis. 53110
Arctic Mizer, spreader, self-powered; vacuum-thatcher, self-powered

Ariens Company, 655 W. Ryan Street, Brillion, Wis. 54110
Ariens Emperor, riding mower — 30" rotary; 8 hp
Ariens Fairway, riding mower — 26" rotary; 5 and 7 hp
Ariens S-8 Tractor, lawn tractor — 36" rotary; 8 hp
Ariens Trac-Team, 26" rotary mower, lawn vacuum, rotary broom on one 8 hp tractor

Armor Metal Products, P.O. Box 822, Helena, Montana 59601
Anderson Rock Picker
Rock windrowers (rock rakes)

Arps Corp., 1711 Wisconsin Ave., New Holstein, Wis. 53061
Arps 728, backhoe, tractor-mounted
Arps 730, backhoe, tractor-mounted
Arps blades and rakes, landscaping rakes and utility blades, box scrapers
Johnson "Work-Horse", front-end loader, garden tractor-mounted
Arps mini-blades and rakes, blades and rakes for garden tractors

**Asplundh Chipper Co.,** Div. Asplundh Tree Expert Co., 50 East Hamilton St., Chalfont, Penna.
Chipper, high speed, tapered blade
Forestry truck, Models L-40, 42, 45, 50; dump body, 12-inch chipper, aerial bucket
Brush hooks

Atlas Tool — Mfg. Co., 5151 Natural Bridge Ave., St. Louis, Mo. 63115
Mowers (rotary)
Shredders
Snow thrower
Tillers

Atwater Strong Div., Gougler Indus. Inc., P.O. Box 68, Atwater, Ohio 44201
Blowers
Sweepers
Air brooms

Aurora Pump Div., NY Air Brake, 800 Airport Rd., Aurora, Ill. 60542
Aurora pumps, irrigation pumps, centrifugal and turbine pumps

**Austin Products, Inc.,** P.O. Box 1590, Dallas, Texas 75221
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Cranes
Discs (cultivating)
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Harrow (spring-toothed)
Hoists
Mowers (rotary and replacement parts)
Post hole digger
Rakes (landscaping)
Scrapers
Shredders

**Auto Hoe, Inc.,** Lost Dauphin Dr., Box W121, De Pere, Wis. 54115
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Avco Ezee Flow Division, 420 S. First Street, Coldwater, Ohio 45828
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Pruners

Avco New Idea, 420 S. First St., Coldwater, Ohio 45828
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Mowers (rotary)
Pruners
Seeders (hopper-type)
Snow thrower
Sweepers (lawn)
Tractor (8-20 hp)
Trimmers (hedge and grass parts)

## B

B.A.G. Corporation, 9443 Sherwood Glen, P.O. Box 28403, Dallas, Texas 75228
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Super Sack container, one-ton disposable container

Baker Equipment Mfg. Co., 1710 High Point Ave., Richmond, Va. 23230
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**Bartlett Mfg. Co.,** 3024 East Grand Blvd., Detroit, Mich. 48202
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Tree bracing materials

Bar-Way Mfg. Co., P.O. Box 640, Stamford, Conn., 06904
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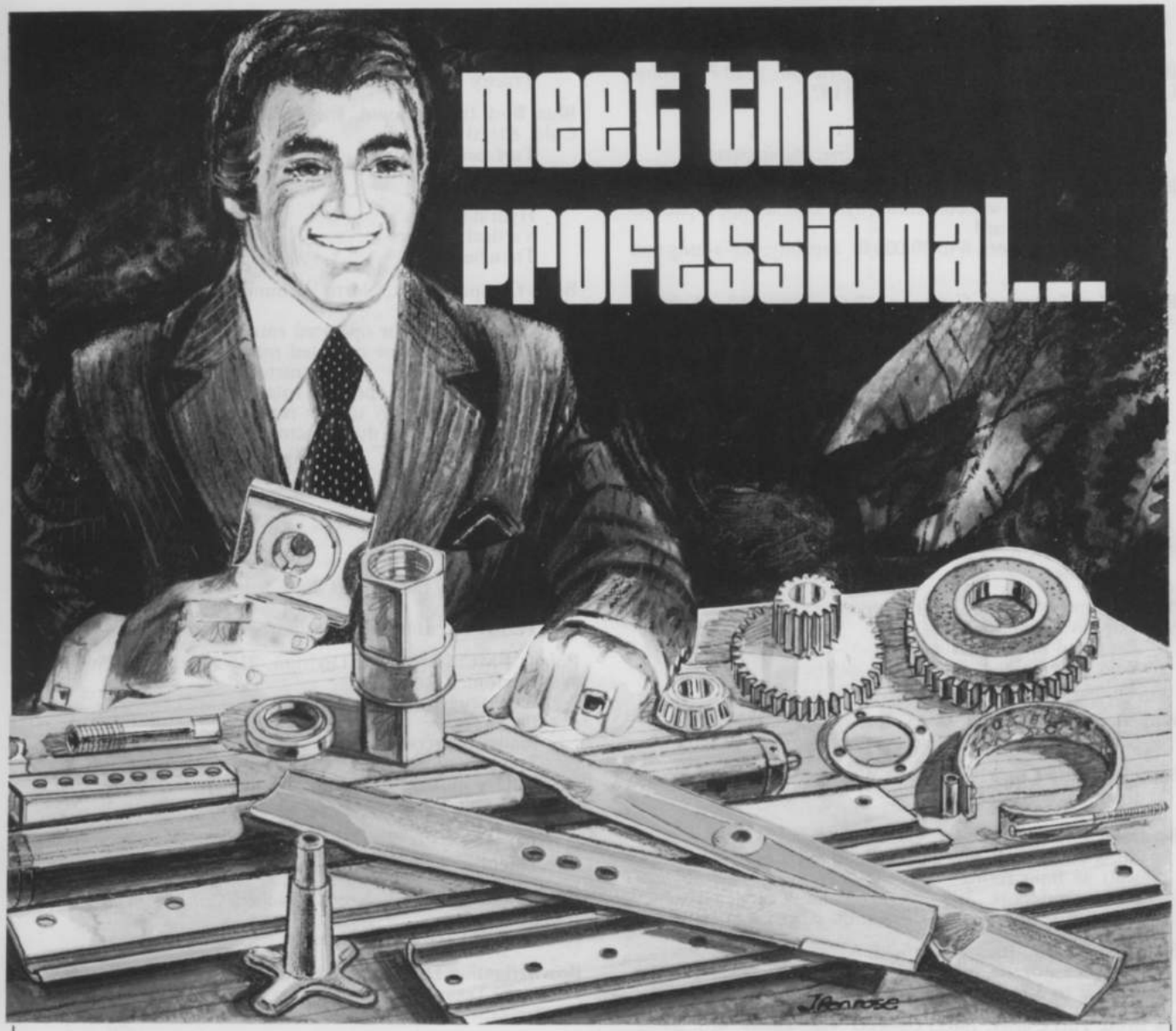
John Bean Div., FMC Corp., 1305 S. Cedar St., Lansing, Mich.
Sprayers, hydraulic, all-purpose, pull-type, stainless steel tanks

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Fury, 7' tractor operated rotary mower
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Bolens FMC Corp. Ope Division, 215 South Park St., Port Washington, Wisc. 53074
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Tillers
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**Boss Irrigation Div., Consolidated Pipe Mfg.,** P.O. Box 5695, Lubbock, Texas 79417
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**Bowie Industries Inc.,** P.O. Box 931, Bowie, Texas 76230
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Bunton Co., 4304 Poplar Level Rd., Louisville, Ky. 40213
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C

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Cresline, PVC pipe and fittings

Crown Chemicals, 4235 Duncan Ave., St. Louis, Mo. 63110
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Ross Daniels, Inc., 1720 Fuller Road, Box 430, West Des Moines, Iowa 50265
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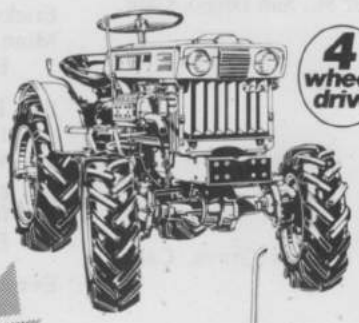


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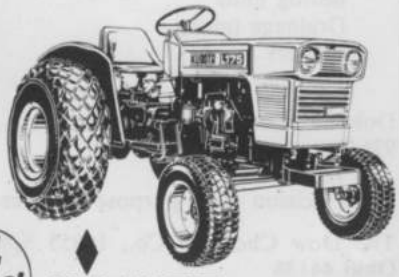

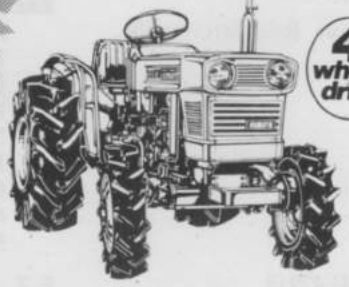


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J. J. Dill Co., P.O. Box 788, 1407 Ravine Rd., Kalamazoo, Mich. 49005
Blowers
Chemical applicators (granular and liquid)
Power dusters
Foggers
Hose (spray, irrigation)
Insect killer
Leaf blowers
Dust and gas masks
Mistblowers (backpack and truck-mounted)
Pumps
Centrifugal pumps
Hose reels
Respirators
Safety equipment
Spray booms
Spray guns
Spray nozzles (complete power unit)
Spreaders (hopper-type)
Spray tanks

Ditch Witch Division, The Charles Machine Works, Inc., P.O. Box 66, Perry, Okla. 73077
Underground construction equipment — trenchers, vibratory plows, utility backhoes, horizontal boring units and related equipment including trailers. Range of line — 7 hp to 195 hp.

Ditch Witch Equipment Co., P.O. Box 15881, 11662 S. Choctaw Dr., Baton Rouge, La. 70815
Backhoes
Boring units
Hydraulic and air powered T
Vibratory plows
Trailers
Trenchers

Ditch Witch of Columbus Inc., P.O. Box 420, Worthington, Ohio 43085
Distributor of trenchers

Ditch Witch of San Diego, 4661 Ruffner St., San Diego, Calif. 92111.
Augers
Earth augers
Backhoes
Boring units
Drainage tubing
Trailers
Trencher

Dobbins, Inc., 9371 Chapman Ave., Garden Grove, Calif. 92641
Turf dresser
Precision multi-purpose mulcher-spreader

The Dow Chemical Co., 14955 Sprague Rd., Strongsville, Ohio 44136
Insect killer
Weed killers
Grass killers
Insecticides
Miticides
Nematocides
In general—turf chemicals

DriAll, Inc., P.O. Box 309, Attica, Ind. 47918
Air curtain destructor, pit incinerator for disposal of trees and wood products—air pollution approved
Scarifier leveler, leveling device with scarifying teeth for landscapers, sod growers
Yard leveler, leveling or grading drag

Dunlop Tire & Rubber Corp., Box 1109, Buffalo, N.Y. 14240
Dunlop tires, for cars and trucks, tractors and implements

## E

Eagle Mfg. Co., 24th & Charles St., Wellsborg, W. Va. 26070
Eagle Cans, gasoline cans manufactured to meet OSHA regulations

Earth Packing Industries, 3340 Peachtree Rd., Atlanta, Ga. 30326
Earth compactor, mounts on a backhoe boom

Echo Chain Saw Div., Kioritz Corp. of America, 350 Wainwright Ave., Northbrook, Ill. 60062
Blowers
Brush cutters
Foggers
Mistblowers (backpack)
Gasoline chain saws and parts
Gasoline engines
Flamethrowers (sprayers)
Power duster

Edwards Manufacturing Company, Route No. Box 1275, Ponca City, Oklahoma 74601
Edwards sprayers, power sprayers, 50, 100, 200, 300, 400, 500, 1,000 gallons; 3 to 50 hp engines

Energy Mfg. Co., Inc., 100 North Main Street, Monticello, Iowa 52310
Hoist
Truck hoists
Travel lift hoists/truck dumpers
Bolster hoists
Hydraulic cylinders
Hydraulic valves
Hydraulic pumps and motors

Engineering Products Co., 1515 E. Ellis St., Waukesha, Wis. 53186
Tractor loaders
Rotary and sickle bar mowers
Snow thrower
Tillers
Tractor (13-20 hp)

Erickson Corp., 211 St. Anthony Blvd., N.E., Minneapolis, Minn. 55418
Erickson hydrostatic drive compact front end loaders

ESB Brands, Inc., (Willard, Exide), Box 6949, Cleveland, Ohio 44101
Willard and Exide batteries, 6-volt electric golf car and golf utility vehicle batteries. Lead acid storage batteries for lawn and garden tractors
ESB battery chargers

Eversman Mfg. Co., Curtis at Fifth St., Denver, Colo. 80204
Eversman Land Leveler

**Excel Industries, Inc.,** P.O. Box 727, Hesston, Kansas 67062
Blades (dozer-scraper)
Brooms
Edgers
Flail and rotary mowers
Snow thrower
Lawn sweepers
Grass/leaf catcher
Grass/leaf mulcher
Slope/hillside mower

E-Z Go Car, Division of Textron, Inc., P.O. Box 388, Augusta, Ga. 30903
Light-hauling utility truck
Gasoline and electric golf cars

E-Z Rake, Inc., 1001 S. Ransdell Road, Lebanon, Indiana 46052
Blowers
Leaf blowers

Power landscaping rakes
Lawn sweepers
Thatchers
Vacuums

F

Fairmont Hydraulics, 332 S. Michigan, Chicago, Ill. 60604
Post hole diggers
Pruners
Hydraulic chain saws and parts
Tools (hand and hydraulic)
Winch

**The Fanno Saw Works,** Box 628, 224 W. 8th Ave., Chico, Calif. 95926
Arborist supplies
Manual saws
Hand and hydraulic tools
Pruning saws and accessories

Fayette Division, Dayton-Walther Corporation, P.O. Box 339, Fayette, Ohio 43521
Trailers

Ferrari International Inc.,6104 Avenida Encinas, Carlsbad, Ca. 92008
Sickle bar mowers
Snow thrower
Complete power unit sprayers
Tillers
Tractors (21-60 hp)
Rotary harrows
Cultivators (row crop)
Rotary and hydraulic tillers

Ferti-Feeder, 3973 Eastlay, Des Moines, Iowa 50306
Ferti-Feeder, tree deep root fertilizer injector

Fibre Glass Products, Box 147, Swannanoa, N. C. 28778
Tool boxes—pickup truck, fiberglass construction, paddle locks, built to accommodate B & G sprayer, fits all size trucks

Fimco, Inc., 1st & Court Streets, Sioux City, Iowa 51101
Big Butch, pressure washer, electric, portable
Dobbins, sprayer, lawn and garden, gas, mechanical agitation; sprayer, orchard and golf course, gas, mechanical agitation

Finn Equipment Company, 2525 Duck Creek Rd., Cincinnati, Ohio 45208
Hydraulic seeding and mulch machines
Mulch blowers
Hydraulic seeders
Burner (air curtain)

The Flintkote Co., Pipe Products Div., Box 151, Ravenna, Ohio 44266
PVC pipe

Flo-Control Inc., 3212 Winona Ave., Burbank, Calif. 91510
Irrigation valves (flow)
P.V.C. compression fittings
Couplings
Adapters
Tees
Check valves

**FMC Corp., Agricultural Machinery Div.,** 5601 E. Highland, Jonesboro Ar. 72401
Blowers
Brush cutters
Chemical applicators (liquid)
Foggers
Hose (spray, irrigation)
Leaf blowers
Mistblowers (truck-mounted and nozzle parts)
Flail mowers
Pumps
Centrifugal pumps
Hose reels
Spray booms
Spray guns
Spray nozzles (complete)
Spray boom
Sprayers (cart or wheelbarrow type, also complete power unit)
Spray tanks

FMC Corporation, Outdoor Power Equipment Div., 215 South Park Street, Port Washington, Wis. 53074
HT-20, tractor, garden, hydrostatic, twin cylinder, 19.5 hp 54-inch rotary mower, 48-inch two-stage snow thrower
QT-16, tractor, garden, hydrostatic drive, twin cylinder 16 hp, 48-inch rotary mower
QS-16, tractor, garden, hydrostatic drive, 48-inch rotary mower, 16 hp.
H-14, tractor, garden, hydrostatic drive, 14 hp 42-inch rotary mower
G-14, tractor, garden, 14 hp, 42-inch rotary mower
G-10, tractor, garden, 10 hp, 38-inch rotary mower
G-8, tractor, lawn, 8 hp, 32-inch rotary mower
828, 829, mower, riding, 8 hp, electric and recoil start, 28-inch rotary mowers, mulching type, rotary, two 22-inch self-propelled; 22-inch and 18-inch hand-proplled
Tillers, 3½ and 5 hp gear drive. 3 and 5 hp chain drive
Snow throwers, 5 to 8 hp with 24-inch to 32-inch width

**FMC Side-Winder,** P.O. Box 818, Minden, Louisiana 71055
Side-winder rotary cutters, tractor drawn rotary cutters, lift and pull models, 4 ft. to 16 ft.
Side-winder flail mowers, tractor drawn flail mowers, 6 ft. and 7 ft. models

**FMC Corporation, Sweeper Division,** 1201 E. Lexington St., Pomona, Calif. 91766
Brush chipper and Wayne stump cutter

**Flymo,** P.O. Box 939, Elkhart, Ind. 46514
Flymo air-cushion rotary mower

Foamspray Chemicals, Inc., P.O. Box 20183, 2623 Perth St., Dallas, Texas 75220
Chemical applicators (liquid)
Soil conditioners (liquid)
Growth aids (liquid)
Surfactants and wetting agents
Foaming agents (application system)

Foley Mfg. Co., 3300 Fifth St. N.E., Minneapolis, Minn. 55418
Chain saw sharpeners
Mowers and cutters sharpeners

**Ford Motor Co., Tractor Operations,** 2500 E. Maple, Troy, Mich. 48084
Earth augers
Backhoes
Blades (dozer-scraper)
Brooms
Brush cutters
Cultivating disc
Diesel and gasoline engines
Fork lift attachment
Graders
Harrow (spike-toothed and spring-toothed)
Skid steer loader
Tractor loader
Handling materials
Flail mowers
Greens mowers

Rotary mowers
Sickle bar mowers
Replacement parts for mowers
Post hole digger
Landscaping rakes
Gasoline chain saws
Scrapers
Snow thrower
Lawn sweepers
Tillers
Tractors (8-151 hp)

Fore-Par, Inc., 7150 Fenwick Lane, Suite 106, Westminster, Calif. 92683
Fore-Par, tee markers, practice green markers, direction and rules signs, flags, personalized flags, tee monuments

Fox Valley Marking Systems, 31W300 West Bartlett Rd., Bartlett, Ill. 60103
Easy Marker, aerosol paint cane type object to aid in layouts for landscapers, contractors, etc.

Friend Mfg. Corp., 4441 Prospect St., Gasport, N.Y. 14067
Arborist supplies
Brush cutters
Brush hooks
Chemical applicators (liquid)
Generators
Hose
Hose (spray, irrigation)
Dust mask
Mistblowers (truck-mounted and nozzle parts)
Pruners
Pumps
Hose reels
Respirators
Manual saws
Hydraulic chain saws
Electric circular saws
Shears
Spray booms
Spray guns
Spray nozzles (complete)
Spray boom
Sprayers (complete power unit)
Spray tanks
Canvas fruit picking buckets

Fruend Can Co., 143 W. 84th St., Chicago, Ill.
Gasoline cans to meet OSHA specifications

**Fuerst Brothers, Inc.,** P.O. Box 271, Rhinebeck, New York 12572
Aerators
Turf combs
Harrow (spike-toothed)
Landscaping rakes
Thatchers

G

**G. & H. Products, Inc.,** St. Paris, Ohio 43072
Uni-Lift, motorized all-position stand for riding mowers, lifts up to 80 inches, 1,000 lb. loads, in less than 30 sec.

Game Time, Inc., The Toro Company, 903 Anderson Rd., Litchfield, Michigan 49252
Park and playground equipment, half-way houses for golf courses

Gandy Company, 528 Gandrud Road, Owatonna, Minnesota 55060
Gandy turf tender, for fertilizer, seed or granular chemical; 42-inch width
Gandy spreader 600 series, for fertilizer, seed or granular chemical; 3, 4, or 5-foot width
Gandy Spreader 10A series, for fertilizer, seed or granular chemical, 6, 8, 10 or 11-foot width, pull-type and tractor mounted
Gandy Spreader 1020A, for fertilizer, seed or granular chemical; 20 foot; folding
Gandy disk mount, granular applicator; 3 to 20 foot, hydraulic or mechanical drive
Gandy Ro-Hi, high clearance granular applicator; 5 to 28-inch band
Gandy line tender, granular applicator; 1 to 21-inch band, handle control
Gandy super/junior, granular applicator; 1 to 21-inch band, implement-mounted
Gandy measuring wheel, one-man land measuring in feet or meters

Garber Seeders, Inc., St. Paris, Ohio
Seeders, hopper-type

General Electric Co., Outdoor Power Equipment Operation, Corporations Park, Bldg. 702, Schnectady, N.Y. 12345
Tractors, electric/battery-powered, full line of attachments

General Scientific Equipment Co., Limekiln Pike & Williams Ave., Philadelphia, Pa. 19150
Aprons
Gloves
First aid kits
Aerosol burn spray

Giant-Vac Mfg., Inc., Machine Shop Road, South Windham, Conn. 06266
Leaf blowers
Chippers
Log splitters
Handling materials
Tillers
Lawn sweepers
Thatchers
Vacuums

Gielow Co., Inc., 3311 Sharpview Dr., Dallas, Texas 75228
"Trim", a weed cutting-grass trimming machine which cuts with a flexible filament of nylon

Ginther Equipment Corp., 1830 Gird Rd., Fallbrook, Ca. 92028
Park equipment
Pruners
Hand and hydraulic and pneumatic tools
Trailers
Light-hauling utility trucks
Turf vehicles
Control stakes and guide rope
Clipping spreaders
Du-Wipers
Turf drags
Hydraulic dump trucks and trailers
Driving range markers and bag supports, signs and out of bounds markers

Glendale Optical Co., Inc., 130 Crossways Park Dr., Woodbury, L. I., N.Y. 11797
Hard hats, head protection gear

Goodall Div., 1405 Bunton Rd., Louisville, Ky. 40213
Goodall, mower, rotary

Gould Inc., P.O. Box 3140, St. Paul, Minn. 55165
Storage batteries

**Granberg Industries, Inc.,** 200 So. Garrard, Richmond, California 94804
Chain saw sharpener
Hedge and grass parts trimmers

# The Davis Difference.

## The Fleetline 20+4's articulation and instant forward/reverse turn tight spots into wide open spaces!

## Even with one hand behind you, the Davis Mono-Stick makes maneuvering no contest!

There's no better way to take on your underground chores than with the compact, highly maneuverable Fleetline 20+4.

It turns tight spots into wide open spaces to handle your trenching, plowing, backfilling and horizontal boring requirements.

This 18 hp rubber-tired trencher has 4-wheel Hydra-Static drive for instant directional change and equal speeds in either direction.

It trenches from 4" wide, 64" deep to 12" wide, 30" deep at varying speeds to match soil conditions.

The limited-slip differentials deliver equal torque to all wheels while hydraulic articulation provides a neat twist for ground-hugging traction!

It handles even the toughest jobs, while you perform all functions from a single control center, where the Mono-Stick makes maneuvering no contest.

See the Fleetline 20+4 at your Davis dealer, or call Davis Manufacturing toll free — 800/835-3016, and get the total scoop on The Davis Difference!

**Davis Manufacturing**
Division of J I Case
A Tenneco Company
P.O. Box 1801
Wichita, Kansas 67201

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FL20-2-176R

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Circle 155 on free information card

MM

**Grass Growers, Inc.,** P.O. Box 584, Plainfield, New Jersey 07061
Terra Tack, for erosion control, straw / hay tack and mulch binder

Gravely, Division Clarke-Gravely Corp., One Gravely Lane, Clemmons, N.C. 27012
816 4-wheel tractor, 8-spd. trans., 16 hp, Onan 2-cylinder engine (rear mounted)
812 4-wheel tractor, 8-spd. trans., 12 hp Kohler single cylinder engine (rear mounted)
810 4-wheel tractor, 8-spd. trans., 10 hp Kohler single cylinder engine (rear mounted)
408 lawn tractor, 34-inch rotary mower, 8 hp Kohler engine
7.6 hp custom 2-wheel tractor, 30" rotary mower, 40" rotary mower, 50" rotary mower
7.6 hp 2-wheel tractor, rotary tiller, rotary plow, rotary cultivator
C-10 hp commercial 2-wheel tractor, 44", 38", 36" snowblowers, front mount 48" scraper
C-12 hp commercial 2-wheel tractor, blade, center-mount scraper blader, riding sulky for 2-wheel tractors

Greenlawn Sprinkler Co., 2200 South Lipan, Denver, Colorado 80223
Irrigation sprinklers (spray, pop-up, heads; stationary; valve in head)
Irrigation (miscellaneous accessories)
Irrigation valves (automatic, flow control)
Irrigation valves-solenoid
Adjustable risers
Manifold tees

W-W Grinder Corp., 2957 N. Market, Wichita, Kansas 67219
Chippers
Shredders
Magnetic floor, fork and road sweepers for pick-up of metal

Griswold Controls, 124 E. Dyer Road, Santa Ana, Calif. 92707
Irrigation controller/programmers
Irrigation valves (automatic)
Irrigation valves (flow control, pressure activated, and solenoid)

Ground Hog, Inc., 25010 E. 5th St., San Bernardino, Calif. 92410
Ground Hog earth drills, 3 models (portable—gas powered)
Ground Hog trencher, model T-3M (for sprinkler systems)

Grumman Aircraft Corp., S. Oyster Bay Rd., Bethpage, L.I., N.Y.
Aircraft, fixed wing

The Guildsman Co., Harrisburg, Pa.
Sprayer, pneumatic-hydraulic, self-contained

Gulf States Paper Corp., P.O. Box 3199, Tuscaloosa, Ala. 35401
Erosion control material

## H

Hadfield Sod Roller Co., 6443 Sherwood, Oxford, Mich. 48051
Sod roller

**Hahn, Inc., Turf-Ag Division,** 1625 N. Garvin St., Evansville, Indiana 47717
Aerators
Chemical applicators (granular and liquid)
Leaf blowers
Greens mowers
Reel mowers
Rotary mowers
Vertical mowers
Spray booms
Spray booms
Sprayers (complete power unit)
Hopper-type spreaders
Spray tanks
Thatchers
Tillers

W. L. Hamilton Co., 327 Lenter St., Bangor, Mich.
Spray guns
Spray nozzles (complete)
Unloader valves

**Hancor, Inc.,** P.O. Box 1047, Finlay, Ohio 45840
Drainage tubing

**Clifford B. Hannay & Son, Inc.,** 422 Maple St., Westerlo, N.Y. 12193
Hose reels

Harvestall Industries, Inc., 3 North Walnut Ave., New Hampton, Iowa 50659
Truckler, combination forklift trailer

Haynes Mfg. Co., Inc., P.O. Box 191, Livingston, Texas 77351.
Tree girdler, mechanical earth drill, wood and stump drill, brush and pruning tools, power soil sampling tools, brush saws, shredder-mowers, saw grinders, brush rakes.

Hays Mfg. Div., Zurn Industries, Inc., 12th & Plum Sts., Erie, Pennsylvania 16501
Marfaid, automatic solenoid valves
Select-O-Rain, industrial controller
Safe-T-Rain, impact and pop-up sprinklers

Hays Spray Gun Co., 98 N. San Gabriel Blvd., Pasadena, Calif.
Sprayers, hose end

Hemco Corporation, P.O. 111 N. Powell Rd., P.O. Box 210, Independence, Missouri 64051
Spray tanks
Tool box-fiberglass pick-up
Custom work-fiberglass

**Herd Seeder Company, Inc.,** P.O. Box 448, 3600 E. on U.S. 35 SE, Logansport, Indiana 46947
Chemical applicators (granular)
Hopper-type seeders
Hopper-type spreaders

**Hesston Corp.,** Lawn Equipment Division, The Toro Company, P.O. Box 39040, Indianapolis, Ind. 46239
Hesston Front-Runner—grounds maintenance tractors, model 200, 19.8 hp—model 180, 18 hp—Model 160, 16 hp; 48", 60" mowers and 80" batwing mower head, self-contained vacuum pick-up (fits 48" & 60" mower heads only). Other attachments: rotary broom, dozer, snow thrower and tillage equipment; features hydrostatic drive, articulated steering, "up-front", roomy operator cockpit
Hesston stump cutter, 8 hp Briggs & Stratton engine, portable, replaceable
Hesston tractor, 16 hp, 18 hp, 20 hp; mower—rotary 48", 60", 80"; vacuum collector, snow-plow dozer blades, rotary broom, cultivators, 42" wide— disc harrow—29"-39" cutting width, aerator, 36" wide, stump cutter, stump removal to 8" below ground level

Highway Equipment Company, 616 D Ave. N.W., Cedar Rapids, Iowa 52405
Hi-Way model P, utility, hopper-type spreader body that is simply set into a truck body to convert pickup, flatbed

or dump body into spreader unit; spreads sand salt or cinders up to 40 ft; used, to spread fertilizer and lime in landscape work

Hiller Aircraft Corp., 1350 Willow Rd., Palo Alto, Calif.
Aircraft, helicopter

Hills-Liqui System, P.O. Box 1043, Victoria, Texas 74901
Horticultural service machine, a specialized tool for feeding, spraying, and treating plants, trees and lawn sprayers

HMC, 22131 S. Vermont, Torrance, Calif. 90502
The Green Machine line
Nylon cord trimmers
Brush clearer
Tree pruning
Pumps
Tillers
Post hole diggers
2-speed drills
Hedge trimmers
Edger trimmers
Jobber
Utility vehicle-3 wheel
Jobmaster, utility vehicle-3 wheel

Hoffco, Inc., 25 Washington Ave., Richmond, Ind. 47374
Hoffco, P8—power scythe, MP—brush cutter, 973—one-man post hole drill, 1000—2-man (2 cycle) post hole drill, Comet Jac-Lift, 2000 lb. winch hoist, 1100—2-man (4 cycle) post hole drill

W. J. Holland Supply, 191 W. 32nd St., Holland, Mich.
Trailers

Holsclaw Bros., Inc., 1325 E. Virginia St., Evansville, Indiana 47711
Trailers

Homelite, A Division of Textron, P.O. Box 7047, Charlotte, N.C. 28217
Generators
Pumps
Centrifugal pumps
Gasoline chain saws and parts

Hortiscape, Inc., 7866 Second St., Dexter, Michigan
Hortiscape landscape border edging
Hortiscape tree guying units

Howard Rotavator Co., Inc., P.O. Box 100, 343 South Division, Harvard, Ill. 60033
Aerators
Backhoes
Tractor loaders
Tillers

Hub States Chemical, 2000 North Illinois Street, Indianapolis, Ind. 46202
Power dusters
Flamethrowers (sprayers)
Foggers
Hose
Insect killer
Dust and gas masks
Mistblowers (backpack, self-propelled, truck-mounted, nozzle parts)
Pumps
Hose reels
Respirators
Spray booms
Spray guns
Spray nozzles (complete)
Spray boom
Sprayers (cart or wheelbarrow type, and complete power unit)
Spreaders (hopper-type)
Spray tanks

**H. D. Hudson Manufacturing Company,** 1500 N. Michigan Ave., Chicago, Illinois 60611
Chemical applicator (granular and liquid)
Flamethrowers (sprayers)
Pumps
Root-feeding rods
Spray booms
Spray guns
Spray nozzles (complete)
Sprayers (cart or wheelbarrow type, complete power unit)
Cordless electric sprayers
Compression sprayers

Husqvarna, Inc., 151 New World Way, South Plainfield, New Jersey 07080
Reel mowers
Rotary mowers
Gasoline chain saws
Gasoline circular saws
Chain saws parts

Huss Sales and Service, 1929 Starr Ave., Toledo, Ohio 43605
Stump cutter

**Hydraulic Products Co., Inc.,** 501 East 42nd, Lubbock, Texas 79404
HPC submersible and vertical turbine pumps for deep wells and pressure booster applications for irrigation applications

Hydro-Turf, P.O. Box 3, Elk Grove, Ill. 60007
Hydro Turf spraying equipment, sprinkler systems — above ground, seeders, portable pumps, portable generators, flexible hose and pipe, Hydro seeders and mulchers

**Hypro Division,** Lear Siegler, Inc., 375 Fifth Ave. N.W., New Brighton, Minn. 55112
Pumps, centrifugal pumps

I

Ideal Crane Div., Bert Parkhurst & Co., 15051 E. Admiral Pl., Tulsa, Okla. 74116
Ideal Crane, hydraulic truck crane (can be operated both electrically and by hand); 3000 lb. capacity electrically-operated crane is $799.00; 2500 lb. capacity hand-operated crane is $349.45; barrel chain and nursery and appliance strap available

Imperial Underground Sprinkler, 705 E. 31st St., Kansas City, Mo. 64109
Irrigation, spray heads and controllers

Inject-O-Meter Mfg. Co., Inc., 820 Thornton, Clovis, New Mexico 88101
Irrigation, injection equipment

Instant Shade Tree Inc., P.O. Box 45437, Houston, Texas 77045
Hydraulic tree spade for transplanting trees

**International Harvester Co.,** 401 N. Michigan Ave., Chicago, Ill. 60611
Blades (dozer-scraper)
Brush cutters
Edgers
Diesel and gasoline engines
Fork lifts
Harrow (spike-toothed and spring toothed)
Skid steer loader
Tractor loader
Flail mowers

Rotary mowers
Sickle bar mowers
Scrapers
Snow thrower
Lawn sweepers
Tillers
Tractor (8-151 and up hp)
Tractor (crawlers)
Light-hauling utility trucks
Complete line of industrial tractor and equipment, truck, construction equipment, turbine engines and agricultural equipment.

**International Spike, Inc.,** 462 East High St., Lexington, Ky. 40508
No. 2000 tree and shrub food spikes
No. 2001 evergreen food spikes
No. 2001 fruit tree food spikes

Irrometer Company, Inc., P.O. Box 2424, Riverside, Calif. 92506
Irrigation (miscellaneous accessories)
Moisture meters
Soil soisture sensors
Hermetically sealed gauge (pressure and vacuum)

ITT Marlow, P.O. Box 200, Midland Park, N.J. 07432
Pumps, irrigation, portable, submersible

J

**Jacobsen Manufacturing Co.,** 1721 Packard Ave., Racine, Wisconsin 54303
Aerators
Blades (dozer-scraper)
Blowers
Turf combs
Edgers
Leaf blowers
Green mowers
Reel mowers
Rotary mowers
Vertical mowers and replacement parts
Disk-type seeders
Snow thrower
Sod cutters
Spikes
Lawn sweepers
Thatchers
Top dressers
Tractor (13-20 hp and 61-151 hp)
Trailers
Light-hauling utility truck trap rake vehicle

Jacobsen Manufacturing Co., Sod-Master Div., 3456 N. Washington Ave., Minneapolis, Minn. 55412
Pipe Piper, 10, 14, 18 hp irrigation pipe pullers; bury the pipe without removing the earth—no trenching

Jameson Corporation, P.O. Box 15277, Charlotte, N.C. 28210
Fiberglass "Safe Stick", fiberglass pruner poles—single sections up to 12 ft. long; fiberglass pruner poles—sectional sections up to 12 ft. long which can be locked together for any desired combination of lengths. Poles will accommodate all pruner heads; "safety yellow", color

Jari Division, Year A Round Cab Co. Inc., Hwy. 167 North, Mankato, Minn. 56001
Sickle bar mowers

Jeep Corporation, 14250 Plymouth Road, Detroit, Michigan 48232
Jeep 4-wheel drive vehicles, Jeep CJ-5/CJ-6 and Jeep Cherokee 4-wheel drive sport/utility vehicles, Jeep Wagoneer 4-wheel drive station wagons and Jeep 4-wheel drive pick-up trucks (light/medium duty)

JLM Products & Design, 6805 Boysenberry Way, Colorado, Springs, Colo. 80907
Soil moisture meter, tested to 12-inch depth, deeper depth units available

Jobu Chain Saws, P.O. Box 6023, Texarkana, Texas 75501
Chain saws

Johns Manville, Ag. Turf Division (irrigation), P.O. Box 5108, Denver, Colo. 80217
Automatic controlers: Binar® Buckner-central, field and residential controllers. Pipe-P.V.C., Transite® Valves: Buckner-electric Piston, electric diaphragm, manual, Stop-Flo-Matic, quick couples, one and two piece.
Sprinklers: Buckner-electric and hydraulic valve-in-head, Stop-Flo-Matic, impact drives, lawn sprays, shrubbery sprays, edger sprays, bubbler heads, drain valves.
Hose swivels, hose bibs, adjustable risers. Febco® back flow devices-reduce pressure; double check valve assemblies, pressure vacuum breakers, atmospheric vacuum breakers.

Johns Manville, Club Car, P.O. Box 5108, Denver, Colo. 80217.
Golf car-electric and fiberglass body, aluminum frame; 4 wheels

Johnson Hydraulic Equipment Co., 215 W. 78 St., Minneapolis, Minn. 55420.
Work Horse loader, for compact tractors
Work Horse terra-blade, for compact tractors
Work Horse forklift, for compact tractors
Work Horse terra-comb, for compact tractors

Johnson's Industrial Supply Co. (Jisco) 1941 Karlin Dr., St. Louis, Mo. 63131
Earth augers

K

K-D Manufacturing Company, P.O. Box 4547, Waco, Texas 76705
Edgers
Fork lifts and attachments
Handling materials

F. D. Kees Mfg. Co., 700 Park Avenue, Beatrice, Nebraska 68310
Aerators
Leaf blowers
Compactors
Rotary mowers
Hopper-type seeders
Shredders
Hopper-type spreaders
Thatchers
Power rakes
Travelling sprinklers

Kemp Shredder Co., 1027 E. 26th St., Erie, Pa. 16505
Shredders

Kershaw Manufacturing Co., Inc., 2205 West Fairview Ave., P.O. Drawer 9328, Montgomery, Ala. 36108
Klearway, a land clearing machine for brush control

**Kinco Mfg.,** 170 North Pascal, St. Paul, Minnesota 55104
Aerators
Brush cutters
Turf combs
Sickle barn and vertical mowers
Thatchers

King Bros. Industries, 251 Powell Rd., Fillmore, Calif. 93015
Flex-Riser®, flexible riser for sprinkler systems
Sta-Stake®, sprinkler riser support

Kirchdorfer Irrigation, 924 Baxter Ave., Louisville, Ky. 40201
Preassembled pumping stations for irrigation systems

Knaack Manufacturing Co., 420 East Terra Cotta Ave., Crystal Lake, Ill. 60014
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Shelving and ladder racks all for pickup trucks vans and stake body trucks

**Kohler Co.,** Kohler, Wis. 53044
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Generators

**KPS Manufacturing, Inc.,** P.O. Box 671, Bay City, Mich. 48706
Chippers; in addition to standard, trailer-mounted, engine driven, tree service and line clearing chippers, also make P.T.O. driven, tractor mounted chippers with capacity up to 4" diameter

Kubota, 300 West Caror St., Compton, Calif. 90220
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Rotary mowers
Post hole digger
Tillers
Tractor (8-30 hp)

Karl Kuemmerling, Inc., 4536 Lincoln Way, E., Massillon, Ohio 44646
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Augers
Earth augers
Brooms
Brush cutters
Brush hooks
Chippers
Log splitters
Mistblowers (backpack and self-propelled)
Moisture meters
Pruners
Root-feeding rods
Safety belts and saddles for tree climbers
Safety equipment
Stump cutter/remover
Tree wrappings
Hedge and grass parts trimmers

L

Lakeshore Equipment & Supply Co., 10237 Berea Rd., Cleveland, Ohio 44102
Replacement parts, mowers
Golf accessories, flags, cups, etc.

Lakeside Mfg. Company, Inc., 39 E. Main St., Honeoye, N.Y. 14471
Trailers, industrial, 6 to 15-ton rated capacity

Lakes Supply Co., Inc., P.O. Box 101, Dundee, Ill. 60118
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Blowers
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Brooms
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Edgers
Gasoline engines
Hoists
Hydraulic lifts
Leaf blowers
Log splitters
Reel mowers
Rotary mowers
Sickle bar mowers
Replacement parts for mowers
Landscaping rakes
Post hole diggers
Gasoline chain saws
Hopper-type seeders
Snow thrower
Lawn sweepers
Tillers
Tractors (8-20 hp)
Drip weed roller applicator

Lancaster Pump & Mfg. Co., Inc., 1340 Manheim Pike, Lancaster, Pa. 17604
Saws, chain, five models, 8 ½-15 lbs. weight, 12-24-inch bar lengths, manual and dual system chain oiler

Lansdowne Equipment Co. Inc., 11402 N. Broadway, Wichita, Kansas 67147
Earth augers
Backhoes
Storage batteries
Boring units
Brooms
Gasoline and diesel engines
Fork lifts and attachments
Skid steer loaders
Tractor loaders
Post hole digger
Trailers
Trencher

L. L. Larson Machine, Inc., P.O. Box 308, Princeville, Illinois 61559
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Seeders (hopper-type)
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Spray guns
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Lauson Power Products, Engine Div., Tecumseh Prod. Co., 900 North St., Grafton, Wisc. 53024
Engines, 2 to 16 hp, vertical and horizontal shaft, transaxles, transmissions, differentials, hydrostatic units

Lawn-Boy, OMC-Lincoln, P.O. Box 82409, Lincoln, Nebraska 68501
Lawn-Boy, solid state ignition rotary mowers, deluxe model rotary mowers

Lawn Medic, Inc., 10 Gates Street, Bergen, New York 14416
Aerators
Chemical applicators (granular and liquid)

Lawnmower Parts Mfg. Co., 16400 Truman Rd., Independence, Mo. 64050.
Bed knives, gears, gaskets, rollers, mower blades

**Lehara Equipment Co., Inc.,** 60 East 42nd St., New York, N.Y. 10017
Lehara Hy-Dro Flail, hydraulic extension mower—for mowing behind guard rails, up and down banks

Lehard Equipment Co., Inc., Edgeboro Rd., Box 309, East Brunswick, N.J. 08816
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Levco Manufacturers, Inc., P.O. Box 72, Wynne, Arkansas 72396
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Fred A. Lewis Company, 40 Belknap Rd., Medford, Oregon 97501
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Winch
Chain saw attachments: winch, fair lead, snatch block, post hole digger, auger
Electric winch with chain saw attachment

Lewis Systems Inc., 424 Montgomery St., Watertown, Wisc. 53094
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**Lifetime Career Schools,** 2251 Barry Ave., Los Angeles, Calif. 90064
Home study training in landscaping

Lift-Quik Mfg. Co., South Min St., Evans Mills, N. Y. 13637
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**Limb-Lopper Co., Inc.,** 11845 Burke, Santa Fe Springs, Calif. 90670
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Powe wrench, impact wrench, hydraulic
Powerbore, drill, hydraulic
Tamper, hydraulic

Lindell Industries, Div., of Lindell Pattern Works, 2689 S. 10th St., Fresno, Calif. 93725
Sweepers, vacuum yard
Blower, leaf blower (windrow)
Edger/trimmer, lawn

**Lindig Manufacturing Corporation,** 1875 West County Rd., St. Paul, Minnesota 55113
Lindig, shredders (soil and compost)—manual and tractor fed, capacity up to 200 yards/hour; screeners (powered) for soil and sand; brush chippers, 7 to 160 hp, compact and full size for branches up to 8" in diameter, also PTO drive; soil treating (sterilization) systems; leaf shredders and compost pulverizer/mixers
Lindig Kajon, compact brush chippers, 7 to 10 hp
Lindig Concho, compost shredder/grinder
Lindig Apache, shredder/bagger for leaves and yard debris
Lindig log splitter

Locke Mfg. Div., Stellar Lawn Care, 1085 Connecticut Ave., Bridgeport, Conn. 06607
Mowers, reel, self-propelled and riding, 30 inches to 87 inches; rotary

**Lockwood Corporation,** Box 160, Gering, Nebr. 69341
Pumps
Centrifugal pumps
Rock pickers
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Spray guns
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Potato equipment
Sugar beet equipment
Dry edible bean equipment
Pecan equipment
Orchard sprayer

Loft-Kellogg Seed, Inc., 322 E. Florida St., P.O. Box 684, Milwaukee, Wisc. 53201
Chemical applicator (granular and liquid)
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Hopper-type spreaders
All grass seed varieties and grass seed mixture
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Loft Pedigreed Seed, Inc., Chimney Rock Rd., P.O. Box 146, Bound Brook, N.J. 08805
Proprietary and common turf seed varieties for golf courses, parks, municipalities, etc.
Turf herbicides
Turf fungicides
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1500 electric, saw, chain, 12-inch bar; 12 amps
Pony, saw, chain, gasoline, 12-inch bar, 6½ lbs.
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## M

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Winch

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Fork lift attachment
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Sickle bar mowers
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Scrapers
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Tillers
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Master Mfg. Co., 119 Main St., P.O. Box 694, Sioux City, Iowa 51102
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Thatchers

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**M-B Company Inc., of Wisconsin,** 1615 Wisconsin Ave., New Holstein, Wis. 53061
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Winch

McCulloch Corp., 5400 Alla Rd., Los Angeles, Calif. 90066
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McDonough Power Equipment, Inc., McDonough, Georgia 30253
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Ben Meadows Co., 3589 Broad St., Atlanta, Ga. 30366
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Self-propelled mistblowers
Moisture meter
Pruners
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Soil testers
Tree injectors

Melnor, Turf Irrigation Div., 1 Carol Place, Moonachie, New Jersey 07074
Shrub nozzle adapters
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Melroe Division, Gwinner, North Dakota 58040
Melroe Bobcat, skid turn front end loader

Melroe Division, Clark Equipment Co., 112 N. University Dr., Fargo, N.D. 58102
Earth augers
Backhoes
Compactors
Fork lift attachments
Skid steer loaders
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Post hole digger
Tree movers

Merritt Equipment Service, Inc., D/B/A Ditch Witch of Georgia, 4891 Clark Howell Hwy., College Park, Ga. 30349
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Blowers
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Trencher

Metro-chiper, Vestor Div., Morbark Ind., Winn, Mich. 48996
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Mid-State Metal Casting and Mfg. Co., 2689 S. 10 St., Fresno, Calif. 93725
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Lawn sweepers
Vacuums

Miller Tilt Top Trailer, Inc., 450 S. & 2 St., Milwaukee, Wis. 53214
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**Mitts & Merrill, Inc.,** 109 McCoskry St., Saginaw, Michigan 48601
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Moody Sprinkler Co., Inc., 3020 Pullman St., Costa Mesa, Calif. 92626
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Automatic controllers electric and hydraulic
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Morbark Industries, Inc., P.O. Box 1000, Winn, Mich. 48896
Morbark Total Chiparvestor, disc type chipper reduces whole trees, limbs intact, up to 21" diameter in less than a minute

**Moridge Mfg. Co.,** Moundridge, Kansas 67107
The Grasshopper-riding mower; cutting width 44", 12 hp. Kohler engine, cutting height ½-5"

Mott Corp., 500 Shawmut Ave., LaGrange, Ill. 60525
Flail mowers

MTD Products, Inc., 5389 W. 130 St., Cleveland, Ohio 44111
Rotary vacuum shredder bagger, 5 hp, 3-state cutting action blade

Mud Cat, Div. of National Car Rental, 5501 Green Valley Dr., Minneapolis, Minn. 55431
Weed harvester, aquatic

The F.E. Myers Co., 400 Orange St., Ashland, Ohio 44805
Pumps
Centrifugal pumps
Spray booms
Spray guns
Spray nozzles (complete)
Sprayers (cart or wheelbarrow type)
Sprayers (complete power unit)

## N

National Chemsearch, 2727 Chemsearch Blvd., Irving, Texas 75062
Roll-A-Boom sprayer

National Foam System, Inc., Parco Div., 150 Gordon Drive, Lionville, Pa. 19353
Dragon model 180, back pack 5-gallon sprayer

National Hydro-Ax, Inc., Box 568, Owatonna, Minn. 55060
Hydro-Ax Brush Cutter, 117 hp 4-wheel drive articulate steering and rough terrain vehicle

National Irrigation Co., 4605 SW 44th Ave., Ft. Lauderdale, Fla. 33314
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Irrigation controller/programmers
Irrigation components
Irrigation pipe, risers
Irrigation pumping stations, complete
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Irrigation systems, complete
Irrigation switches
Irrigation, sand separators
Irrigation, miscellaneous accessories
Irrigation valves (automatic, flow control, pressure activated, qiuck coupling and solenoid)

National Mower Co., 700 Raymond, St. Paul, Minn. 55116
Reel mowers

Nelco, Inc., 2712 S.W. Freeway, Suite 118, Houston, Texas 77006
Pipe, irrigation through microporous openings

L. R. Nelson Corp., 7719 N. Pioneer Lane, Peoria, Ill. 61614
Irrigation controller/programmers
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Irrigation, miscellaneous accessories
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Irrigation traveling sprinklers

New Draulics, Inc., 2252 South 3600 West, Salt Lake City, Utah 84119
Brush cutters
Hydraulic and air powered tools
Hydraulic chain saws, circular, hydraulic

Northrup Kind and Co., 1500 Jackson St. NE, Minneapolis, Minn. 55413
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Nunes Manufacturing, 2006 Loquot Ave., Patterson, Calif. 95363
Nunes Sod Harvester, complete mechancial sod harvester; mounted on Ford Model 4110 tractor; front cutoff and cutter assembly; will eliminate sod cutter labor; available in styles to: fold, slab, roll, sod
Nunes Vacuum Sweeper, turf sweeper designed for sod growers; available with PTO drive or motor driven

O

Oberdorfer Foundries, Inc., Agri, Pump Div., Thompson Rd., Syracuse, N.Y. 13201
Pumps, bronze and aluminum, rotary gear, rubber impeller, rubber cotlar, centrifugal, helical rotor

Olathe Mfg. Inc., 2nd and Mulberry, Paula, Kansas 66071
Chippers
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Stump cutter/remover

Omark Industries, Inc., Oregon Saw Chain Div., 9701 S.E. McLoughlin Blvd., Portland, Ore. 97222
Oregon saw chain, saw chain and accessory items
Oregon power mate and super-tronic saw bars
Oregon power mate, rim and drum sprockets

Onan Division, Onan Corp., 1400 73rd Ave. NE, Minneapolis, Minn 55432
Battery chargers
Diesel and gasoline engines
Generators

Otis Elevator Co., Special Vehicle Div., P.O. Box 8600, Stockton, Calif. 95208
Otis Golf Car, electric, 4-wheel, 36 volts
Otis Turf-Awl, gasoline, 3 and 4-wheel, 18 hp

Otis Materials Handling, 8000 Baker, Cleveland, Ohio
Forklifts

P

Pac Craft Products, Inc., 515 Schoenhaar Dr., West Bend, Wisc. 53095
"Heff-T-Herman"-vertical platform lift
"Pac-A-Boom"-aerial bucket lift
"Sert-A-Dump"-hydraulic dump bed

Papec Machine Co., Shortsville, N.Y. 14548
Leaf blower

Par Aide Products Co., 296 No. Pascal St., St. Paul, Minn. 55104
Complete line of greens and tee accessories equipment including: golf ballwashers, flag poles and flags, tee towels, detergent for golf ballwashers, aluminum and plastic putting cups, hole cutters, cup setter, cup puller, rule signs, custom tee plaques, furniture for locker room and tee benches, spike rushes, sand trap rakes, etc.

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Payline Division, International Harvester, 600 Woodfield, Schaumburg, Ill. 60096
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Skid steer loaders
Tractor loaders
Scrapers
Tractors (21-151 and up hp)
Tractor crawlers

Pennwalt Corp., 3 Parkway, Philadelphia, Pa. 19102
Aquatic herbicides
Aquathol K (liquid and granular)
Hydrothol 47 (liquid and granular)
Hydrothol 191 (liquid and granular)

Perma-Rain Irrigation, Inc., P.O. Box 880, Lindsay, Calif. 93247
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Fogger, Perma-Rain, for tree and shrub irrigation and plant cooling

Pioneer, OMC-Lincoln, P.O. Box 82409, Lincoln, Nebraska 68501
Pioneer P 40, 4.0 cu. inch engine chain saw for professional use
Pioneer P 20, 3.1 cu. inch displacement chain saw for casual use
Pioneer P25, 3.1 cu. inch displacement chain saw for casual use
Pioneer 1200 A, 3,546 cu. inch displacement chain saw for professional use
P 50, 5.0 cu. inch engine chain saw for professional use
Pioneer 1074, 3.1 cu. inch displacement chain saw for casual use

Piper Aircraft, Bald Eagle Street, Lock Haven, Pa. 17745
Aircraft, fixed wing

Piqua Engineering, Inc., Box 605, Piqua, Ohio 45356
Chippers
Log splitters
Shredders

Pitman Manufacturing Co., Div. A. B. Chance Co., P.O. Box 120, Grandview, Mo. 64030
Mobilift, aerial bucket

Plasti Chain Corporation, P.O. Box 267, Hebron, Illinois 60034
Plasti-Chain and accessories

Plastiline, Inc., 1251 N.E. 45 St., Pompano Beach, Fla. 33061
Polyethylene (plastic) fittings

Plastic Techniques, Inc., New Boston, N.H. 03070
Plastic Techniques, aerial lift truck accessories

H. K. Porter, Inc., 74 Foley St., Somerville, Mass. 02143
Cutters, bolt, rod, cable, chain, etc.
Shears, lopping
Trimmers, tree
Shears, pruning
Cutters, brush and root

Power Spike Mfg. Co., P.O. Box 67, Walters, Okla. 73572
Aerators
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Precision Chipper Corporation, Box 360, Leeds, Ala. 35094
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**Princeton Manufacturing Co.,** 2625 Johnstown Rd., Columbus, Ohio 43219
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Product Development International, Box 1776, Liberty, S.C. 29657
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Promark Corp., P.O. Box 708, Nowalk, Ohio
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Proturf Division, O.M. Scott and Sons, Marysville, Ohio 43040
Aerators
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Spreaders (hopper-type)

Proven Pumps Corp., 1440 N. Spring St., Los Angeles, Calif. 90012
Instant self-priming pumps, AC or DC-move to 300 gph

R

**RainBird Sprinkler Mfg. Corp.,** 7045 N. Grand, Glendora, Calif. 91724
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Hose (irrigation, spray)
Irrigation controllers/programmers
Irrigation components
Irrigation pipe (risers)
Irrigation sprinklers (above ground; impact, impulse, pop-up, heads; shrub and bubbler; spray, pop-up, heads; rotary, pop-up, heads; stationary; valve in head)
Irrigation systems, complete
Irrigation (miscellaneous accessories)
Irrigation valves (automatic; flow control; pressure activated; quick coupling; solenoid)
Spray nozzles (complete)

**Rain Jet Corporation,** 301 S. Flower St., Burbank, Calif. 91503
Irrigation components
Irrigation pipe (risers)
Irrigation sprinklers (above ground; impulse, pop-up, heads; shrub and bubbler; spray, pop-up, heads; rotary, pop-up heads; stationary)
Irrigation systems (complete)
Irrigation sand separators
Irrigation (miscellaneous accessories)
Irrigation valves (flow control; quick coupling)
Spray nozzles (complete)

Rain-O-Mat Sprinklers, Inc., P.O. Box 151, Whittier, Calif. 90608
Rotary pop-up sprinklers
Impact sprinklers
Pop-up sprays, shrub sprays
Electric valves, valve adaptors, hydraulic valves
Automatic controllers
Valve markers
Quick coupling valves and couplers
Mini nozzle emitters

Raven Industries, Inc., Box 1107, Sioux Falls, S.D.57101
Spray tanks
Plastic pipe thread fittings
Plastic hose barb fittings

**Reach-All Manufacturing and Engineering Co.,** 436 Calvary Road, Duluth, Minnesota 55803
Aerial bucket lifts
Aerial platforms
Earth augers
Cranes

Red Ewald Inc., P.O. Box 519, Karnes City, Texas 78118
Chemical applicators (liquid)
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Hose (spray, irrigation)
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Centrifugal pumps
Hose reels
Safety equipment
Spray booms
Spray guns
Spray nozzles (complete)
Sprayers (cart or wheelbarrow type)
Sprayers (complete power unit
Spray tanks
Trailers
Irrigation tanks—fiberglass storage tanks

**Reinco, Inc.,** P.O. Box 584, Plainfield, New Jersey 07061
Erosion control materials
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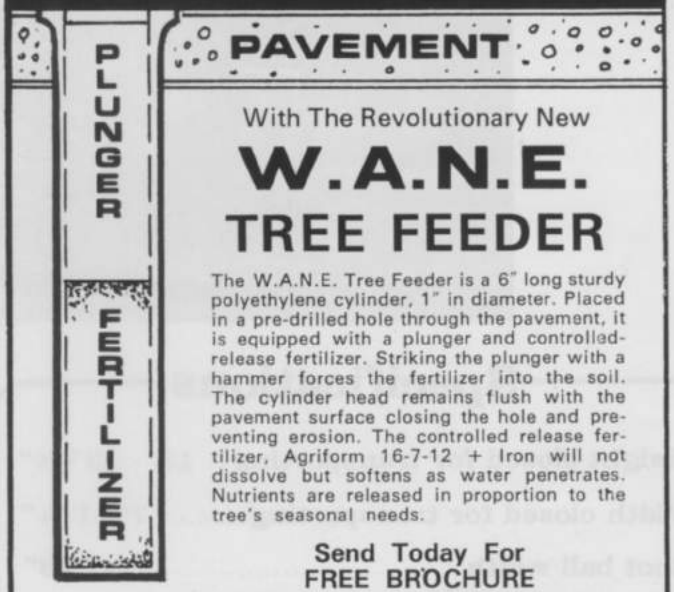


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W.A.N.E.
TREE FEEDER

The W.A.N.E. Tree Feeder is a 6" long sturdy polyethylene cylinder, 1" in diameter. Placed in a pre-drilled hole through the pavement, it is equipped with a plunger and controlled-release fertilizer. Striking the plunger with a hammer forces the fertilizer into the soil. The cylinder head remains flush with the pavement surface closing the hole and preventing erosion. The controlled release fertilizer, Agriform 16-7-12 + Iron will not dissolve but softens as water penetrates. Nutrients are released in proportion to the tree's seasonal needs.

Send Today For
FREE BROCHURE

W.A.N.E. TREE SYSTEMS
RT. 1 - Box 68 Tampa, Florida 33612
Ph. (813) 961-1060

Circle 108 on free information card

# Big John Tree Transplanter

"World's Largest Patented Tree Spade"

The Big John moves up to 10" trunk trees with a 7,000 # root ball. Twin screw trunk recommended.

**CALL (501) 362-6223**

**Bill Lindsey,**
**Exec. Vice-President, Gen. Mgr.**

**For Further Information**

## Big John Tree Transplanter Mfg. Co., Inc.

**P.O. Box 608 Heber Springs, Arkansas 72543**

### Specifications

| | |
|---|---|
| Height closed for transporting | 13' - 13'4½" |
| Width closed for transporting | 7' 11¾" |
| Root ball width | 78" |
| Root ball depth | 60" |
| Blade travel | 63" |

FEATURING . . .

**360° LEVELING**
**SIMPLE CONSTRUCTION**
**MOST PARTS STANDARD**

Its curved tracks and spoon shaped blades enable it to excavate this large root ball and remain within legal highway limits.

U. S. Patent No. 3,775,876

Circle 154 on free information card

# How The Big John Tree Transplanter Works

**1** The Big John Tree Transplanter is positioned to receive the tree. The spoon shaped spades and automatic locks are in an open position.

**2** As the lock remains open, the truck is positioned, so the spades surround the tree.

**3** The locks are closed and the digging process begins. Notice the stabilizers pictured behind the left rear tire—these stabilizers (on each side) are especially valuable in loading on soft ground.

**4** One station operation is an important feature. Since the machine is fully hydraulic, the operator can do all his work from one position. (At this point, the spades dig into the soil.)

**5**

The spoon shaped spades of this machine allow the largest amount of dirt to be lifted with the roots of the tree and still be within legal width of highway traveling.

The Big John is able to move widespread trees and shrubs. Its curved tracks open to 12' 8'', thus allowing the machine to work in a limited area.

**6**

The tree is being removed from the ground. Notice again the one station operation of this machine.

**7**

The tree has been removed from the ground safely and efficiently. It will be lowered parallel to the ground and will be ready for transporting.

## Big John Tree Transplanter Mfg. Co., Inc.

## CALL (501) 362-6223

**Heber Springs, Arkansas 72543** **Delivery in 90 days at present time.**

Mulch blowers
Hydraulic seeding

Rental Equipment Mfg. Co., 2778 S. Tejon, Englewood, Colo. 801101
Bluebird, lawn combers, A/K/A thatchers, dethatchers, lawn rakes, renovators and vertical mowers, 4hp, 5hp, 7hp.
Bluebird "1500", engine hoists, knockdown types
Bluebird "3000", engine hoists, towable type
Bluebird "Yardbird", utility crane
Bluebird, engine stands
Bluebird "F20B", lawn comber, compact type, 5 hp

Ridge Plastics Co., Highway 18 East, P.O. Box 2205, Jonesboro, Arkansas 72401
Biaxially oriented HD plastic pipe, sub-irrigation

Robco, Inc., 2800 Bay Road, P.O. Box 5326, Redwood City, Calif. 94063
Blowers
Power dusters
Hose
Hose (spray, irrigation)
Pumps
Centrifugal pumps
Sprayers (complete power units)
Spray tanks

Rockwell International, 5001 North Rockwell Ave., Bethany, Oklahoma 73008
Rockwell Thrush Commander, agricultural aircraft, fixed wing

Rogers Bros., 100 Orchard St., Albion, Pa. 16401
Trailers

Roof Mfg., 1011 W. Howard St., Pontiac, Ill. 61764
Ranger, mower, self-propelled, tilt blade for heavy cutting, 5 hp or 7 hp, 24-inch or 26-inch cut
Roof 400, mower, push, blade clutch, 5 hp, 21-inch or 24-inch cut, belt-driven blade

Root-Lowell Mfg. Corporation, 1000 Foreman Road, Lowell, Michigan 49331
Chemical applicators (granular and liquid)
Flamethrower (sprayers)
Foggers
Pumps
Sprayers (complete power unit)
Line striper
Garden sprayers (compressed aid, 2-4 gallon

Roper Corporation, 1905 W. Court St., Kankakee, Ill. 60901
Saws, chain; manual and automatic; dual system chain oiler

Rosco Manufacturing Co., 3118 Snelling Ave. So., Minneapolis, Minn. 55406
Road brooms
Turf rollers

Roseman Mower Corporation, 2300 Chestnut Avenue, Glenview, Illinois 60025
Reel mowers
Landscaping rakes

Roto-Hoe Co., 100 Auburn Rd., Newberry, Ohio 44065
Shredders
Snow throwers
Tillers

Rowco Mfg. Co., Inc., 48 Emerald St., Keene, N.H. 03431
Brushking®, brushcutter, engine-driven

Roxy-Bonner, Inc., 200 Pioneer Rd., Huntingdon Valley, Pa. 19006
Reel mowers

**Royer Foundry & Machine Co.,** 158 Pringle St., Kingston, Pa. 18704
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Chippers
Shredders

**Ryan, OMC-Lincoln,** 1401 Cushman Dr., Lincoln, Nebraska 68512
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Edgers
Rotary mowers
Vertical mowers
Turf rollers
Sod cutters
Thatchers
Top dressers
Turf vehicles

Joseph T. Ryerson & Son, Inc., P.O. Box 8000-A, Chicago, Ill. 60680
Landscape edging, steel

## S

Sabre Saw Chain, Inc., Third Ave. and Sabre Drive, Niagara Falls, N.Y. 14304
Sabre, saw chain, guide bars, sprockets, wedges, files, accessories

Safeline Products, P.O. Box 550, Putnam, Conn. 06260
Respirators (all types), lung protection
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Hearing protectors, muff-type and ear plugs
Hard hats and caps, plastic safety hats and caps

Safe-T-Lawn, Inc., 7800 N.W. 32nd St., Miami, Florida 33122
Safe-T-Rain, rotor pop-up (ball drive)
Rise-N-Rain, impact type pop-up
GL-67, 2" pop-up spray type
GL-71, 6" pop-up spray type

**Safety Test & Equipment Co., Inc.,** P.O. Drawer 400, Shelby, North Carolina 28150
Wood/Chuck, manufacturer of Wood/Chipper capable of chipping logs up to 8" in diameter
Safety Test, manufacturer of complete line of tree trimming and linemen's equipment

**Sarlo Power Mowers,** P.O. Box 1169, Ft. Meyers, Fla. 33902
High Wheels power mower

Satco-Systems Inc., 1717 Four Mile Rd. NE, Grand Rapids, Mich.
Turf-Vac self-propelled rider vacuum, fairway vacuum sweepers

Satoh Tractor c/o NEDA, P.O. Box 5025, Richmond, Va. 23220
S-650G, tractor, utility, 25 hp; water-cooled, 4-cylinder engine, category I—3-point linkage; 2-speed PTO, 540 and 1,000 rpm

Schutt's Equipment Co., P.O. Box 412, Birmingham, Mich. 48009
Tree movers

Schwartz Mfg., 129 Pine Street South, Lester Prairie, Minn. 55354
Cranes
Hoists
Tractor loaders
Trailers
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Tilting and rolling platforms for truck chassis

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N-Bar®, floating barrier to hold back aquatic vegetation

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Garden tools, pruning shears, grass shears, hedge shears, lopping shears, tree pruners, pruning saws

Simplex Mfg. Co., 5224 N.E. 42nd Ave., Portland, Oregon 97218
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Aerial disc-type seeders
Aerial hopper-type seeders
Aerial hydraulic seeders
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Aerial seeding systems
Aerial fertilizing systems
Aerial dust systems

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Skil Corporation, 5033 Elston Ave., Chicago, Ill. 60630
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The Skinner Irrigation Co., 2530 Spring Grove Ave., Cincinnati, Ohio 45214
Irrigation systems

R. & G. Sloane Mfg. Co., 7606 N. Clybourne Ave., Sun Valley, Calif. 91352
GSR Color Guard, PVC fittings for pipelines, sizes include ¾-inch through 2 inches class 315 and 2½ inches through 8 inches; class 200, press rated

Slope Tractor, Inc., 106 W. Ninth St., Harper, Kansas 67058
Rotary mowers
Sickle bar mowers
Tractor (21-150 hp)

Smith & Co., Inc., D.B., 414 Main St., Utica, N.Y. 13503
Sprayers, complete power unit

**Smithco, Inc.,** 11 West Ave., Wayne, Pa. 19087
Red Rider, 3-wheel turf vehicle
Top Rider, top dresser
Little Beaver Spiker, spiker
Easy Rider III, sand trap rake
Lark, 110-gallon fiberglass sprayer
Hawk 200, 200-gallon fiberglass sprayer w/Golden Eagle pump
Hawk 300, 300-gallon fiberglass sprayer w/Golden Eagle pump
Cardinal, 200-gallon stainless steel sprayer w/Golden Eagle pump

Smith Precision Products Co., 1299 Lawrence Dr., Newbury Park, Calif. 91320
Liquid fertilizer dispersion (measuremix)
Irrigation, injection equipment

**The Snow Company,** 4350 McKinley, Omaha, Nebraska 68112
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Turf vehicles

Soilmoisture Equipment Corp., P.O. Box 30025, Santa Barbara, Calif. 93105
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Irrigation (miscellaneous accessories)
Moisture meters
Soil testers

Solo Inc., P.O. Box 5030, 5100 Chestnut Ave., Newport News, Virginia 23605
Blowers
Air brooms
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Mistblowers (backpack, self-propelled, truck-mounted, nozzle parts)
Rotary mowers
Sickle bar mowers
Gasoline chain saws
Cart or wheelbarrow type sprayers
Tillers

Speedex Tractor Co., 367 N. Freedom St., Ravenna, Ohio 44266
Speedex tractor, 8hp, 10hp, 4hp
Mowers rotary 36-inch, 44-inch, 50-inch

Sperry-New Holland, New Holland, Pa. 17557
Skid steer loaders
Sickle bar mowers
Trencher

Spray Baby, Inc., 751 N. Edmonds Dr., Carson City, Nev. 89701
Seeders, hydraulic
Mulchers, hydraulic

**Spraying Systems Co.,** North Avenue at Schmale Road, Wheaton, Illinois 60187
Spray nozzles, complete
Spray guns

Sprinkler Irrigation Supply Co., 1316 Campbell Rd., Royal Oak, Michigan 48067
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Irrigation injection equipment
Irrigation controller/programmers
Irrigation components
Irrigation pipe (risers)
Irrigation pumping stations (complete)
Irrigation sprinklers (above ground; impact; impulse, pop-up, heads; shrub and bubbler; spray, pop-up, heads; rotary, pop-up, heads; stationary; valve in head)
Irrigation systems (complete)
Irrigation switches
Irrigation sand separators
Irrigation (miscellaneous accessories)
Irrigation valves (automatic, flow control; pressure activated; quick coupling valves; solenoid)
Moisture meters
Pumps
Centrifugal pumps

**Standard Mfg. Co.,** 220 E. 4th St., Cedar Falls, Iowa 50613
Standard golf course equipment
Soil testers
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Portable bridges

**Stanley Hydraulic Tools,** 13770 S.E. Ambler Road, Clackamas, Oregon 97015
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Chain saws
Submersible water pump
Ventilating blowers
Hydraulic chain saws
Tools (hand, hydraulic)

**Stihl American, Inc.,** 107 Bauer Dr., Oakland, N.J. 07436
Chain saws, electric and gasoline powered, saw, chain, powered
Stihl SG-17, blower/sprayer, backpack gasoline powered
Stihl Cutquik, saw, circular cut-off for cement, stone, steel, pipes, etc.
Stihl earth auger and planting tool, gasoline powered
Stihl Brush-Cutter, brush and weed cutter, gasoline powered
Stihl Hedge-Trimmer, hedge trimmer, gasoline powered, trim hedges and small brush and trees

Stone Construction Equipment Co., 32 East Main, Honeoye, N.Y. 14471
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Whole tree chipper

Sudbury Laboratory, Inc., 572 Dutton Rd., Sudbury, Mass. 01776
Soil Testers

Sun-Mastr Corp., P.O. Box 31, 603 S. Kansas, Olathe, Kansas 66061
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Flail mowers
Rotary mowers
Shredders
Flail shredders

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T

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Chain saw sharpener
Mowers and cutter sharpener
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Hedge and grass parts trimmers
Winch

TCI Power Products, 900 Ferdil, Yankton, S.D. 57078
Fork lifts and attachments
Loaders
Post hole digger

Tecumseh Products Co., 900 North St., Grafton, Wis. 53024
Tecumseh Engines, 2 to 18 hp, 4-cycle and 2-cycle, air and liquid cooled, single and twin cylinder
Tecumseh genuine parts
Peerless Gear Drives, transmission, transaxles, hydrostatic gear drives, right angle and T drives
Taylor Mufflers
SnowKing Engines

Teledyne Wisconsin Motor, 1910 South 53rd St., Milwaukee, Wisconsin 53246
Wisconsin, Wisconsin-Robin, Wisconsin-Hatz Diesel, heavy-duty, air-cooled internal combustion engines, 3-80 hp, single, two, three and four-cylinder

Tennant Co., P.O. Box 1452, 721 North Lilac Dr., Minneapolis, Minn. 55440
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Terrain King Corp., P.O. Drawer 549, Seguin, Texas 78155
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Replacement parts for mowers
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Thomas Equipment, Ltd., Centreville, New Brunswick, Canada
Mower, sickle, attachment to front end loader

Thompson Manufacturing, 2251 E. 7th St., Los Angeles 90023
Irrigation components
Irrigation sprinkler (above ground; impact; impulse, pop-up, heads; shrub and bubbler; spray, pop-up, heads; rotary, pop-up, heads; stationary)
Irrigation (miscellaneous accessories)
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Tilton Equipment Co., 4612 N. Chatsworth, St. Paul, Minn. 55112
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Jonsereds chain saws, six models, 7 to 20 lbs. weight, 12-60 inch bar length, automatic and dual system chain oiler
Olympic chain saws, 4 models, 15-20 lbs. weight

Time Mfg. Co., 7601 Imperial Dr., Waco, Texas 76710
Versalift hydraulic aerial lift

Topeka Metal Specialties Inc., 5600 S. Topeka Blvd., Box 5014, Topeka, Kansas 66605
"Strong Boy"—hydraulic dump bed designed for use on pick-up trucks

Tork Time Controls, Inc., 1 Grove St., Mt. Vernon, N.Y. 10550
Tork, irrigation, automatic lawn sprinkler controls

**The Toro Company,** 8111 Lyndale Ave., So. Bloomington, Minn. 55420
Mowers: Hevi-Duty-Walk rotary two 21" 4 hp both hand propelled. One is rearbagging, one has optional side bagging. Two 21" 5 hp heavy duty. One is hand propelled, other is self-propelled. One 6 hp 25" heavy duty.
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Tee mower 70" reel, 6 blades only
70 Professional 5 or 6 blades, recoil or electric start
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Super Pro 81" 5 or 6 blades
Greenmaster, 21" walk
Greensmaster 3-14 hp riding mower
Sand Pro
Turf tractor
Gangmowers-30" Spartans 5 or 7 blades
Rough Masters 4 or 6 blades
Park Master 5, 7 or 9 units
Rake-O-Vac
Workmaster-turf truck
Toro Front Runner line
80" Batwing mower
GMT tractors 18 hp, 19.8 hp, 16 hp
Front Runner Turf Truck
Front Runner 3 wheeler 16, 19.8 hp.

**Toro Irrigation Division,** P.O. Box 489, Riverside, Calif. 92502
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Irrigation (miscellaneous accessories)
Irrigation valves (automatic; quick coupling valves; solenoid)
Back flow preventers

**Toro Technology Center—A Division of the Toro Company,** 1709 LaCosta Meadows Dr., San Marcos, Calif. 92069
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Irrigation components
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Irrigation valves (automatic; flow control; pressure activated; quick coupling valves; solenoid)
Back flow preventers

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Backpack mistblowers
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Travelrain Power Sprinkler Co., 239 No. Robertson Blvd., Beverly Hills, Calif. 90211
Travelrain Power Sprinkler, traveling sprinkler
Sharpomatic, drill and tool sharpening machine

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Circle 158 on free information card

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Agricultural chemicals

Turf Service Laboratory, Inc., 11762 Western Ave., Stanton, Calif. 90680
Moisture meters

Turf Vac Corporation, P.O. Box 4339, Long Beach, Calif. 90804
Turf Vac, self-propelled rider vacuum
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U

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Up-Right Scaffolds, 1013 Pardee St., Berkeley, Calif. 94710
Scaffolds, portable, aluminum for tree trimming

**Utility Body Co.,** 901 Gilmen, Berkeley, Calif. 94710
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V

Valley Products Corporation, Box 668, Valley, Nebr. 68064
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**Vandermolen Corp.,** 119 Dorsa Ave., Livingston, N.J. 07039
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Venable Sprinkler Sales, Inc., 3401 Conflans, Irving, Texas 75060
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Veri Products, 1252 W. Keats, Fresno, Calif. 93705
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Rotary mowers, parts
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Chain saw sharpener

**Vermeer Manufacturing Company,** P.O. Box 200, Pella, Iowa 50219
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Trailers
Tree movers
Trencher

Viking Pump Co., 4th and Shutte Sts., Cedar Falls, Iowa
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Village Blacksmith, McGraw Edison Portable Electric Tool Division, 1200 East State St., Geneva, Illinois 60134
Village Blacksmith, garden cutting tools, electric chain saws, electric hedge trimmers, electric edger trimmers, electric cultivator, cord reels, "Blitz Fog" insect fogging devices, gas engine fogger, electric tree surgeon, post hole diggers and augers

Vogel Tool & Die Corp., Stone Park, Illinois
Post hole drill

W

Waco Industries, Inc., 749 Airways Blvd., Jackson, Tenn. 38301
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Handling materials

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Index-O-Matic Washer, completely portable; semi-pneumatic tires; all-steel frame 5 or 25-gallon tank; 3 gpm pump; 1½ hp motor; fiberglass tank
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**W.A.N.E. Tree Systems,** Rt. 1, P.O. Box 68, Tampa, Florida 33612
Tree feeding system

Warren Turf Nursery, 8400 W. 111 St., Palos Park, Ill. 60464
Sod, seed and lawn food

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Irrigation components
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Irrigation systems complete
Irrigation (miscellaneous accessories)
Irrigation valves (automatic, quick coupling valves; solenoid)

H. N. Webster Mfg., P.O. Box 1628, Sebring, Florida 33870
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**Weed Eaters, Inc.,** 5146 Richmond Ave., Houston, Texas 77027
Edgers
Trimmers for grass parts

Welsh Mfg. Co., Magnolia St., Providence, R.I. 02909
Respirators, for use in pesticide application
Ammonia respirators
Dust respirators
Goggles
Safety caps

Westinghouse Electric Vehicles, Westinghouse Bldg., Pittsburg, Pa. 15222
Electric golf cars

Wet Mfg. Co., Inc., 955 Elm St., Orange, Calif. 92667
Sprinkler irrigation equipment

**Wheel Horse Products,** 515 W. Ireland Rd., South Bend, Indiana 46614
Wheel Horse D-200 Automatic, 19.9 hp twin cylinder tractor
Wheel Horse D-180 Automatic, 18 hp twin cylinder tractor
Wheel Horse D-160 Automatic, 16 hp tractor
Wheel Horse C-160 Automatic, 16 hp tractor
Wheel Horse C-160 8-speed, 16 hp tractor
Wheel Horse C-100 8-speed, 10 hp tractor
Wheel Horse D-Series Attachments; for D-1 200 automatic, D-180 automatic and D-160 Automatic: 60" rear mount mower; 48" side discharge mid-mount mower; 56" snow/dozer blade; 50" grader blade; 50" tiller; 36" aerator; 38" or 31" lawn sweeper; 32" lawn roller; 4-wheel wagon; 2-wheel dump cart; and a 48" snowthrower
Wheel Horse C-Series Attachments, for C-160 Automatic, C-160 8-speed, C-120 automatic and C-100 8-speed: 48" side discharge mower; 42" side discharge mower; 36" side discharge mower; 36" rear discharge mower; 42" snowthrower; 56" snow/dozer blade; 42" snow/dozer blade; 40" grader blade; 36" tiller; 36" aerator; 38" or 31" lawn sweeper; 32" roller; 2-section cultivator; harrow; 32" disc; lawn vacuum; 4-wheel wagon; and a 2-wheel dump cart
Wheel Horse B-Series Attachments, for B-100 Automatic and B-80 4-speed: 36" side discharge mower; 36" rear discharge mower; 37" snowthrower; 42" snow/dozer blade; 40" grader blade; 36" aerator; 38" or 31" lawn sweeper; 32" lawn roller; 32" disc; 2-section cultivator; harrow; 36" tiller; 4-wheel wagon; and a 2-wheel dump cart
Wheel Horse A-Series Attachments, for A-800 42" snow blade; 36" aerator; 38" or 31" lawn sweeper; 32" lawn roller; 4-wheel wagon; and a 2-wheel dump cart

Wheel Power Corp., P.O. Box 21227, Phoenix, Ariz. 85036
Wheel Power Truck Tractor, two-passenger, 25 hp gas, 3,000 lb. load capacity, four-wheel drive, center articulated steering; accessories: hydralic dump bed can and windshield, hyd. blade, 3-point hitch.

White Farm Equipment, 2625 Butterfield Rd., Oak Brook, Ill. 60521
Cultivating discs
Diesel engines
Spring-toothed harrow
Tractor loaders
Gasoline chain saws
Tillers
Tractors !13-20 hp and 61-161 and up hp

Willmar Mfg. Co., Wilmar, Minn.
Spreader, pull-type, floatation tires, spreads up to 1½ tons per load

Willson Products Div., ESB Inc., P.O. Box 622, Reading, Pa. 19603
Masks, gas; dust
Respirators
Safety equipment-ear muffs, ear plugs, blasting helmets, welding goggles, face masks/shields, safety spectacles, and hard hats.

**Wisconsin Marine, Inc.,** Lake Mills, Wisconsin 53551
Mowers (rotary)—21" rear bagger
36"/48" self-propelled (interchangeable mower decks)
61" riding mower
Snowthrowers-20" cutting width, 5 hp; 24" cutting width, 7 hp; 28"cutting width, 8 hp.

Wood Brothers, Inc., Hwy. 2 So., Oregon, Ill. 61061
RM 59, rear mounted rotary lawn mower; three blades cut a 5-foot swath; adapts to any standard 3-point hitch

Woods, Div. of Hesston Corp., Oregon, Ill. 61106
Backhoes
Blades (dozer-scraper)
Hoists
Rotary mowers
Vaccums

## Y

Yazoo Mfg. Co., 3607 Livingston Rd., Jackson, Miss. 39216
Edgers
Rotary mowers
Tillers
Trailers

York Modern Corporation, Mill and Watson St., Unadilla, N.Y. 13849
Graders
Landscaping and all-purpose rakes

# CROSS REFERENCE GUIDE TO MANUFACTURERS BY ITEMS

### AERATORS
Brinly Hardy Co.
Capital Equipment Co.
Fuerst Brothers, Inc.
Hahn Inc., Turf-Ag, Division
Howard Rotavator Co., Inc.
Jacobsen Mfg. Co.
F. D. Kees Mfg. Co.
Kinco Mfg.
Lakes Supply Co., Inc.
Lawn Medic Inc.
Power Spike Mfg. Co.
ProTurf Div., O. M. Scott and Sons
Ryan, OMC-Lincoln

### AERIAL BUCKET LIFTS
Causco Inc.
Correct Mfg., Hughes Keenan Div.
McCabe-Powers Body Co.
Merritt Equipment Service Inc. D/B/A Ditch Witch of Georgia
Pac Craft Products, Inc.
Pitman Mfg. Co., Div. A. B. Chance Co.
Plastic Techniques, Inc
Reach-All Mfg and Engineering Co.
Selma Trailer & Mfg. Co.
Time Mfg. Co.
Utility Body Co.

### AERIAL PLATFORMS
McCabe-Powers Body Co.
Mobile Aerial Towers, Inc.
Pac Craft Products, Inc.
Reach-All Mfg. and Engineering Co.

### AIRCRAFT, FIXED WING
Grumman Aircraft Corp.
Piper Aircraft
Rockwell International

### AIRCRAFT, HELICOPTER
Bell Helicopter Co.
Hiller Aircraft Corp.

### AQUATIC WEED HARVESTER
Air-Lec Industries, Inc. Outdoor Product Div.
A. O. A. Research & Development, Inc.
Aquamarine Corp.
Mud Cat Div. National Car Rental

### ARBORIST SUPPLIES
American Arborist Supplies
Crown Chemicals
The Fanno Saw Works
Friend Mfg. Corp.
Karl Kuemmerling, Inc.
Ben Meadows Co.

### AUGERS
Austin Products
Howard S. Crane, Inc.
Ditch Witch of San Diego
Karl Kuemmerling, Inc.
Fred A. Lewis Co.
McCabe-Powers Body Co.
Ben Meadows Co.
Merritt Equipment Service Inc. D/B/A Ditch Witch of Georgia
Village Blacksmith, McGraw Edison Portable Electric Tool Div.

### BACKHOES
Allis-Chalmers Corp.
Arps Corp.
Bolens: FMC Corp., OPE Div.
J I Case, Outdoor Power Equipment Division
Davis Mfg., Div. of J I Case
John Deere and Company
Ditch Witch Div. of The Charles Machine Works, Inc.
Ditch Witch Equipment Co.
Ditch Witch of San Diego
Ford Tractor Operations
Howard Rotavator Co., Inc.
Kubota
Lansdowne Equipment Co. Inc.
Massey-Ferguson, Inc.
Melroe Division, Clark Equipment Co.
Merritt Equipment Service Inc. D/B/A Ditch Witch of Georgia
Payline Division, International Harvester
Vermeer Mfg. Co.
Woods, Div. of Hesston Corp.

### BARRIER, AQUATIC WEEDS
Sea Guard, Inc.

### BATTERIES, STORAGE
Deere and Company
Gould Inc.
Lansdowne Equipment Co., Inc.
Trojan Battery Co.

### BATTERY CHARGERS
Black and Decker Mfg. Co.
Deere and Company
ESB Brands, Inc.
Onan Division of Onan Corp.

### BLADES, DOZER-SCRAPER
Austin Products
Avco New Idea
Bolens: FMC Corp., OPE Div.
Brinly Hardy Co., Inc.
E. L Caldwell & Sons, Inc.
J. I. Case, Outdoor Power Equipment Division
Excel Industries, Inc.
Ford Tractor Operations
International Harvester
Jacobsen Mfg. Co.
Kubota
Massey-Ferguson, Inc.
Merritt Equipment Service Inc., D/B/A Ditch Witch of Georgia
Payline Division, International Harvester
Vermeer Mfg. Co.
Woods, Div. of Hesston Corp.

### BLOWERS
Atwater Strong Div. Gougler Industries, Inc.
Billy Goat Industries Inc.
Capital Equipment Co.
J. J. Dill Co.
Echo Chain Saw Div., Kioritz Corp. of America
E-Z Rake Inc.
FMC Corp., Agricultural Machinery Div.
Jacobsen Mfg. Co.
Lakes Supply Co., Inc.
Merritt Equipment Service, Inc.
Parker Sweeper Company
Robco, Inc.
Solo Motors, Inc.
Stanley Hydraulic Tools
Stihl American Inc.
T.R.E.E.S., Inc.
Vandermolen Corp.

### BORING UNIT
Davis Mfg. Div. of J I Case
Ditch Witch Div., The Charles Machine Works, Inc.
Ditch With Equipment Co.
Ditch Witch of San Diego
Lakes Supply Co., Inc.
Lansdowne Equipment Co., Inc.
Merritt Equipment Service Inc., D/B/A Ditch Witch of Georgia
Vermeer Mfg. Co.

### BRIDGES, PORTABLE
Standard Mfg. Co.

### BROOMS
Ariens Co.
Atwater Strong Div.
Excel Industries, Inc.
Ford Tractor Operations
Karl Kuemmerling, Inc.
Lakes Supply Co., Inc.
Lansdowne Equipment Co., Inc.
Mars Industries, Inc.
MB Company Inc. of Wisconsin
Merritt Equipment Services, Inc. D/B/A Ditch Witch of Georgia
Rosco Mfg. Co.
Solo Inc.
Sweepster, Inc

### BRUSH CUTTERS
Austin Products
Bombardier Limited
E. L. Caldwell & Sons, Inc.
Echo Chain Saw Div., Kioritz Corp. of America
FMC Corp., Agricultural Machinery Division
Ford Tractor Operations
Friend Mfg. Corp.
Hoffco, Inc.
International Harvester Co.
Kershaw Mfg. Co., Inc.
Kinco Mfg.
Karl Kuemmerling, Inc.
McCulloch Corp.
Ben Meadows Co.
Merritt Equipment Service Inc. D/B/A Ditch Witch of Georgia
National Hydro-Ax Inc.
New Draulics, Inc.
H. K. Porter, Inc.
Rowco Mfg. Co., Inc.
Royer Foundry and Machine Co.
Stanley Hydraulic Tools
Stihl American, Inc.
Stone Construction Equipment
Sun Master Corp.
Terrain King Corp.
Tilton Equipment Co.

### CHEMICAL APPLICATORS, GRANULAR
Agro Care
Avco New Idea
John Blue Co.
Contree Sales, Inc.
J. J. Dill Co.
Gandy Co.
Hahn Inc., Turf-Ag. Div.
Herd Seeder Company, Inc.
H. D. Hudson Mfg. Co.

L. L. Larson Machine Inc.
Lawn Medic, Inc.
Lely
Loft-Kellogg Seed, Inc.
ProTurf Div., O. M. Scott and Sons
Root-Lowell Corp.
Simplex Mfg. Co.
Vandermolen Corp.

### CHEMICAL APPLICATORS, LIQUID

Agro Care
Beeco Products Co.
John Blue Co.
The Broyhill Co.
Cenol-Division Burgess Vibrocrafters Inc.
Contree Sales, Inc.
Crown Chemicals
J. J. Dill Co.
FMC Corp., Agricultural Machinery Division
Foamspray Chemicals, Inc.
Friend Mfg. Corp.
Hahn Inc., Turf-Ag. Div.
H. D. Hudson Mfg. Co.
Lakes Supply Co., Inc.
L. L. Larson Machine, Inc.
Lawn Medic Inc.
Lely
Loft-Kellogg Seed, Inc.
Minnesota Wanner Co.
Red Ewald Inc.
Root-Lowell Corp.
Simplex Mfg. Co.
Smith Precision Products Co.
The Vandermolen Co.

### CHIPPERS

American Arborist Supplies
Asplundh Chipper Co. Div. Asplundh Tree Expert Co.
Billy Goat Industries Inc.
Capital Equipment Co.
FMC Corp., Sweeper Div.
Giant Vac Mfg. Inc.
W-W Grinder Corp.
KPS Mfg. Inc.
Karl Kuemmerling, Inc.
M-B Company Inc. of Wisconsin
Metro-Chipper, Vestar Div., Morbark Ind.
Mitts & Merrill Inc.
Morbark Industries, Inc.
Olathe Mfg., Inc.
Piqua Engineering Inc.
Precision Chipper Corp.
Royer Foundry & Machine Co.
Safety Test & Equipment Co., Inc.
Strong Mfg. Co.
Vandermolen Corp.
Vermeer Mfg.Co.

### COMPACTORS

Earth Packing Industries
F. D. Kees Mfg. Co.
Melroe Division, Clark Equipment Co.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
Stone Construction Equipment Co.

### COMBS, TURF

Fuerst Brothers, Inc.
Jacobsen Mfg. Co.
Johnson Hydraulic Equipment Co.,
Kinco Mfg.
Mathew Company
Rental Equipment Mfg. Co.

### CRANES

Adventure Line Mfg. Co.
Austin Products
Blue Bird International, Inc.
Ideal Crane Div., Bert Parkhurst & Co.
McCabe-Powers Body Co.
Reach-All Manufacturing & Engineering Co.
Rental Equip. Mfg. Co.
Schwartz Mfg. Co.

### DISCS, CULTIVATING

Austin Products
Brinly Hardy Co., Inc.
Ford Tractor Operations
Massey-Ferguson Inc.
White Farm Equipment

### DRAINAGE TUBING

Advanced Drainage Systems, Inc.
Amoco Chemicals Corp. Industrial Products Div.
Certain-Teed Daymond Co.
Ditch Witch of San Diego
Hancor, Inc.

### DRILLS, FIELD

Ground Hog, Inc.
Haynes Mfg. Co., Inc.
HMC
Limb-Lopper Co., Inc.
McCulloch Corp.
Tallman Equipment Co., Inc.

### DUSTERS, POWER

John Blue Co.
Buffalo Turbine Ag. Equip. Co.
R. E. Chapin Mfg. Wks. Inc.
Curtis Dyna Products Corp.
J. J. Dill Co.
Echo Chain Saw Division-Kioritz Corp. of America
Hub States Chemical
Robco, Inc.
Simplex Mfg. Co.
T.R.E.E.S., Inc.
Universal-Gerwin Div., Leigh Products, Inc.
Evandermolen Co.

### EARTH AUGERS

Austin Products
Bolens: FMC Corp., OPE Division
Contree Sales
Ditch Witch of San Diego
Ford Tractor Operations
Johnson's Industrial Supply Co. —JISCO
Karl Kuemmerling, Inc.
Landsdowne Equip. Co., Inc.
Fred A Lewis Co.
Massey-Ferguson Inc.
McCabe-Powers Body Co.
Ben Meadows Co.
Melroe Division, Clark Equipment Co.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
Reach-All Mfg. and Engineering Co.
Soilmoisture Equipment Co.
Stihl American Inc.
Tallman Equipment Co., Inc.
Tradewinds, Inc.
T.R.E.E.S., Inc.
Vermeer Mfg. Co.

### EDGERS

A.M.F. Lawn and Garden
Black & Decker Mfg. Co.
Capital Equipment Co.
Cooper Mfg. Co.
Excel Industries, Inc.


# Hypro sprayer pumps

Choose from a wide range of pump designs and materials to suit your requirements: cast-iron, Ni-Resist and bronze pump housings... even nickel plating on piston pumps.

## PISTON PUMPS

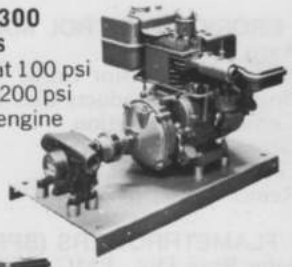
**Series 5200 Big Twin**
10 gpm output at 400 psi with 6 hp engine

**Series 5400 4-Cylinder**
25 gpm output at 600 psi

## ROLLER PUMPS

Choice of rubber or nylon rollers

**Series 6300 6-Rollers**
6.9 gpm at 100 psi
6 gpm at 200 psi
4 hp gas engine



**Series 7560C 8-Rollers**
10 gpm at 200 psi with 4 hp engine

*Write for complete pump catalog or request pump recommendation for your need.*

**Hypro** / LSi
A division of Lear Siegler, Inc.
347 Fifth Avenue NW, St. Paul, Minnesota 55112

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HMC
Hortiscape, Inc.
International Harvesters
Jacobsen Mfg. Co.
K-D Mfg. Co.
Lakes Supply Co. Inc.
Lindell Industries, Div. of
Lindell Pattern Works
Ryan, OMC-Lincoln
Joseph T. Ryerson & Son, Inc.
T.R.E.E.S., Inc.
Village Blacksmith, McGraw Edison
Portable Electric Tool Div.
Weed Eater, Inc.
Yazoo Mfg. Co.

## ENGINES, DIESEL

Allis-Chalmers Corp.
Capital Equipment Co.
Deere and Co.
Ford Tractor Operations
International Harvester
Landsdowne Equipment Co. Inc.
Merritt Equipment Service, Inc.
D/B/A Ditch Witch of Georgia
Onan Division-Onan Corp.
Payline Division,
International Harvester
White Farm Equipment

## ENGINES, GASOLINE

Briggs & Stratton Corp.
Capital Equipment Co.
Clinton Engines Corp.
Deere and Co.
Echo Chain Saw Division-Kioritz
Corp. of America
Ford Tractor Operations
International Harvester
Kohler Co.
Lakes Supply Co., Inc.
Landsdowne Equipment Co., Inc.
Lauson Power Products, Engine Div.
Tecumseh Products Co.
Merritt Equipment Service, Inc.
D/B/A Ditch Witch of Georgia
Onan Div., of Onan Corp.
Payline Div. International Harvester
Tecumseh Products
Teledyne Wisconsin Motor

## EROSION CONTROL MATERIALS

Agro Care
American Excelsior Corp.
Brighton By-Products Co., Inc.
Conwed Corporation
Grass Growers, Inc.
Gulf States Paper Corp.
Reinco Inc.

## FLAMETHROWERS (SPRAYERS)

John Bean Div., FMC Corp.
Echo Chain Saw Div., Kioritz Corp.
of America
Hub States Chemical
H. D. Hudson Mfg. Co.
Root-Lowell Corp.
Universal-Gerwin Div.,
Leigh Products, Inc.

## FOGGERS

Cenol-Division Burgess
Vibrocrafters Inc.
Curtis Dyna Products Corp.
J. J. Dill Co.
Echo Chain Saw Div., Kioritz Corp.
of America
FMC Corp., Agricultural
Machinery Div.
Hub States Chemical
London Fog Company
Perma-Rain Irrigation, Inc.
Root-Lowell Corp.
Village Blacksmith, McGraw Edison
Portable Tool Div.

## FORK LIFTS

Allis-Chalmers Corp.
Deere and Company
Harvestall Industries, Inc.
International Harvester
Johnson Hydraulic Equipment Co.
K-D Mfg. Co.
Landsdowne Equipment Co., Inc.
Massey-Ferguson, Inc.
Otis Materials Handling
Payline Division,
International Harvester
TCI, Power Products

## FORK LIFT (ATTACHMENT)

Allis-Chalmers Corp.
J I Case, Outdoor Power
Equipment Div.
Ford Tractor Operations
K-D Mfg. Co.
Landsdowne Equipment Co. Inc.
Massey-Ferguson Inc.
Melroe Div., Clark Equipment Co.
T. C. I. Power Products

## GENERATORS

Allis-Chalmers Corp.
Beard-Poulan Div.,
Emerson Electric Co.
Capital Equipment Co.
Friend Mfg. Corp.
Homelite, Division of Textron
Kohler Co.
London Fog Co.
McCulloch Corp.
Merritt Equipment Service, Inc.
D/B/A Ditch Witch of Georgia
Onan Div. of Onan Corp.
Tallman Equipment Co., Inc.

## GRADERS

Deer and Company
DriAll, Inc.
Ford Tractor Operations
York Modern Corp.

## GOLF SUPPLIES

Club Car, Inc.
Coursigns, Inc.
E-Z-Go Car Division Textron Inc.
Fore-Par, Inc.
Game Time, Inc.
Ginther Equipment Corp.
Johns Manville, Club Car
Lakeshore Equipment & Supply Co.
Lewis Systems Inc.
Lift-Quik Mfg. Co.
Otis Elevator Co.,
Special Vehicle Div.
Par Aide Products Co.
Pargo, Inc.
Standard Mfg. Co.
Westinghouse Electric Vehicles

## HARROW, SPIKE-TOOTHED

Brinly Hardy Co., Inc.
Capital Equipment Co.
Ford Tractor Operations
Fuerst Brothers Inc.
International Harvester
Towner Mfg. Co.

## HARROW, SPRING-TOOTHED

Allis-Chalmers
Austin Products
Brinly Hardy Co., Inc.


**Dedoes Industries, Inc.**
1060 W. WEST MAPLE WALLED LAKE, MICH. 48088
(313) 624-7710

**DEDOES AERATOR DISTRIBUTOR LIST**

| | |
|---|---|
| **Alabama** | |
| Birmingham | Tieco |
| Montgomery | Tieco |
| **Arizona** | |
| Phoenix | Lawn & Garden Supply Co. |
| Tuscon | Lawn & Garden Supply Co. |
| **California** | |
| Burlingame | Toro Pacific Distributing |
| Sacramento | Brady-Holmes Co. |
| San Diego | Toro Pacific Distributing |
| **Colorado** | |
| Denver | The Barteldes Co. |
| **Connecticut** | |
| South Windsor | Turf Products Corp. |
| **Florida** | |
| Hollywood | Debra Turf Equipment |
| Jacksonville | Zaun Equipment, Inc. |
| Tampa | Debra Turf Equipment |
| Pensacola | Gulf Shore Turf Supply, Inc. |
| **Georgia** | |
| Conyers | Lawn & Turf, Inc. |
| **Idaho** | |
| Boise | Cliff Carlson Co. |
| **Illinois** | |
| Evanston | Roseman Tractor Equipment Co. |
| Itasca | Toro Distributing |
| **Indiana** | |
| Fort Wayne | Summit Power Equipment Dist. |
| Indianapolis | Kenney Machinery Corp. |
| **Iowa** | |
| Iowa City | Little Wheels, Ltd. |
| **Kansas** | |
| Wichita | Champion Turf Equipment, Inc. |
| **Kentucky** | |
| Nashville, TN | Central South Turf, Dist., Inc. |
| **Maine** | |
| South Portland | Yerxa's, Inc. |
| **Maryland** | |
| Baltimore | Adams Equipment, Inc. |
| Silver Spring | Adams Equipment, Inc. |
| **Massachusetts** | |
| West Newton | The Clapper Co. |
| **Michigan** | |
| Birmingham | W. F. Miller Garden & Lawn Equip. |
| Grand Rapids | W. F. Miller Garden & Lawn Equip. |
| **Minnesota** | |
| Minneapolis | Minnesota Toro, Inc. |
| **Missouri** | |
| Chesterfield | Beckmann Turf & Irrigation Supply |
| Kansas City | Champion Turf Equipment, Inc. |
| Springfield | Champion Turf Equipment, Inc. |
| **Montana** | |
| Billings | Turf-Aid, Inc. |
| **Nebraska** | |
| Omaha | Midwest Toro |
| **New Jersey** | |
| Westfield | Storr Tractor |
| **New York** | |
| Brewster | The Powerhouse |
| Hamburg | Eaton Equipment Corp. |
| Latham | Grassland Equipment & Irrigation |
| Syracuse | Haverstick Golf & Tractor, Inc. |
| **North Carolina** | |
| Shelby | Porter Brothers |
| **Ohio** | |
| Tiffin | Earl J. Crane, Inc. |
| **Oklahoma** | |
| Oklahoma City | Paul Blakeney Company |
| **Oregon** | |
| Portland | Baltz & Son Co. |
| **Pennsylvania** | |
| Philadelphia | Farm & Golf Course Supply Co. |
| Pittsburgh | E. H. Griffith, Inc. |
| **Tennessee** | |
| Memphis | Turfaid, Inc. |
| Nashville | Tieco |
| **Texas** | |
| Dallas | Watson Distributing Co., Inc. |
| Houston | Watson Distributing Co., Inc. |
| San Antonio | Watson Distributing Co., Inc. |
| **Utah** | |
| Salt Lake City | Cliff Carlson Co. |
| **Virginia** | |
| Richmond | Richmond Power Equipment Co., Inc. |
| **Wisconsin** | |
| Chilton | Horst Distributors, Inc. |
| Pardeeville | Northern Turf Equipment, Inc. |
| **OUTSIDE THE U.S.** | |
| **Ontario** | |
| Burlington | Duke Lawn Equipment, Limited |
| **Quebec** | |
| Quebec | Spramotor, Limited |
| **Sweden** | |
| Rimbo | Industri Belos, AB |

# Dedoes TAKES THE WORK OUT OF AERATING

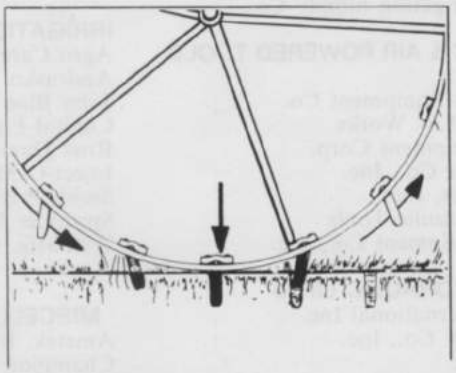
- Aerates any green or tee in less than 20 minutes
- Collects cores to save you costly cleanup
- Adapts and quickly mounts to your all-purpose vehicle

  The self-contained hydraulic system lowers the unit and transfers the vehicle's weight to create the down force for necessary penetration.
- Rugged construction and engineering design saves you maintenance costs

The DEDOES Pro-TCA (Total Course Aeration) aerator replaces a team of men.

DEDOES also has a Fairways unit with the same hinged door and/or removable side plate features.

The DEDOES TCA 501 and TCA 601 give you Total Course Aeration.



**PATENTED HINGE**
The Dedoes patented hinge principle provides near-perfect perpendicular penetration, which gives you clean ½" holes without the slightest tear.

## Your Turf Pro Distributor Has Details on the DEDOES TCA Line

**Dedoes INDUSTRIES, INC.** 1060 W. WEST MAPLE RD. · WALLED LAKE, MICH. 48088 · (313) 624-7710

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Capital Equipment Co.
Ford Tractor Operations
International Harvester
Towner Mfg. Co.
White Farm Equipment

### HOISTS

Austin Products
Bluebird International, Inc.
Crysteel Mfg. Inc.
Dico. Co., Inc.
Energy Mfg. Co., Inc.
Hoffco, Inc.
Lakes Supply Co., Inc.
Maasdam Pow'r Pull Inc.
Rental Equipment Mfg. Co.
Schwartz Mfg.
Tallman Equipment Co., Inc.
Terrain King Corp.
Woods, Div. of Hesston Corp.

### HOSE

Aeroquip Corporation
Friend Mfg. Corp.
Hub States Chemical
Loft-Kellogg Seed, Inc.
Merritt Equipment Service, Inc. D/B/A. Ditch Witch of Georgia
Minnesota Wannter Co.
Rain Bird Sprinkler Mfg. Co.
Red Ewald, Inc.
Robco, Inc.
Swan Hose Div., Amerace Corp.

### HOSE, SPRAY, IRRIGATION

American Hose & Reel Co.
The Broyhill Co.
Capital Equipment Co.
J. J. Dill Co.
FMC Corp., Agricultural Machinery Div.
Friend Mfg. Co.
Hydro-Turf
National Irrigation Co.
Rain Bird Sprinkler Mfg. Corp.
Red Ewald Inc.
Robco, Inc.
Sprinkler Irrigation Supply Co.

### HYDRAULIC & AIR POWERED TOOLS

Causco Inc.
Ditch Witch Equipment Co.
The Fanno Saw Works
Ginther Equipment Corp.
Limb-Lopper Co., Inc.
New Draulics, Inc.
Stanley Hydraulic Tools
Tallman Equipment Co., Inc.

### HYDRAULIC LIFTS

Bluebird International Inc.
Lakes Supply Co., Inc.
Magline, Inc.
McCabe-Powers Body Co.
Turf Vac Corp.

### HYDRAULIC SEEDING & MULCHING MACHINES

Bowie Industries, Inc.
Rinn Equipment Co.
Hydro Turf
Reinco, Inc.
Spray Baby, Inc.

### INSECT KILLER

Agro Care
Cenol-Division Burgess Vibrocrafters, Inc.
Contree Sales
Crown Chemicals
J. J. Dill Co.
The Dow Chemical Co.
Hub States Chemical
Loft-Kellogg Seed Inc.
Vandermolen Corp.

### IRRIGATION, COMPONENTS

Capital Equipment Co.
Johns Manville-Ag Turf Div. (irrigation)
Lumenite Electronic Co.
National Irrigation Co.
L. R. Nelson Corp.
RainBird Sprinkler Mfg. Corp.
Rain Jet Corp.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Irrigation Div.
Toro Technology Center-Div. of the Toro Company
Weather-matic Div., Telsco Industries
Wet Mfg. Co., Inc.

### IRRIGATION CONTROLLER/PROGRAMMERS

Aqua-Dial
Griswold Controls
Hays Mfg. Div., Zurn Industries Inc.
Imperial Underground Sprinkler
John Manville-Ag. Turf Div. (irrigation)
Lumenite Electronic Co.
Melnor, Turf Irrigation Div.
Moody Sprinkler Co., Inc.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain-O-Mat Sprinklers, Inc.
Sprinkler Irrigation Suppy Co.
Superior Controls Co., Inc.
Tork Time Controls, Inc.
Toro Irrigation Division
Toro Technology Center-Div. of the Toro Company
Weather-Matic Div., Telsco Industries
Wet Mfg. Co.

### IRRIGATION, INJECTION EQUIPMENT

Agro Care
Andrasko Engineering Co.
John Blue Company
Capital Equipment Co.
Ross Daniels Inc.
Inject-O-Meter Mfg. Co., Inc.
Smith Precision Products Co.
Sprinkler Irrigation Supply Co.
Wet Mfg. Co., Inc.

### IRRIGATION MISCELLANEOUS ACCESSORIES

Ametek, Inc.
Champion Brass Mfg.
Greenlawn Sprinkler Co.
Irrometer Co., Inc.
Johns Manville-Ag. Turf Division (irrigation)
Melnor, Turf Irrigation Div.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Soilmoisture Equipment Corp.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Irrigation Division
Toro Technology Center-Division of the Toro Company
Weather-Matic Div./Telsco Industries
West Mfg. Co., Inc.

### IRRIGATION PIPE, RISERS

Alcoa Aluminum Co. of America
Amoco Chemicals Corp., Industries Products Div.
Capital Equipment Co.
Cast Iron Pipe Res. Assoc.
Certain-Teed/Daymond Co.
Certain-Teed Pipe & Plastics Group
Cresline Plastic Pipe, Inc.
Flintkote Co., The Pipe Products Div.
Flo-Control Inc.
Greenlawn Sprinkler Co.
Hydro-Turf
Jacobsen Manufacturing Co., Sod-Master Div.
Johns Manville-Ag Turf Div. (irrigation)
King Bros. Industries
Melnor, Turf Irrigation Div.
National Irrigation Co.
Nelco, Inc.
Plastiline, Inc.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Raven Industries Inc.
Ridge Plastics Co.
R. & G. Sloane Mfg. Co.
Sprinkler Irrigation Supply Co.

### IRRIGATION, PUMPING STATIONS, COMPLETE

Kirchdorfer Irrigation
National Irrigation Co.
Sprinkler Irrigation Supply Co.
Venable Sprinkler Sales, Inc.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS, ABOVE GROUND

Capital Equipment Co.
Hydro-Turf
Loft-Kellogg Seed, Inc.
Lumenite Electronic Co.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Technology Center-Division of the Toro Co.
Travelrain Power Sprinkler Co.
Vermeer Mfg. Co.
Weather-matic Div., Telsco Ind.
Wet Mfg. Co, Inc.

### IRRIGATION SPRINKLERS, IMPACT

Hays Mfg. Div., Zurn Industries, Inc.
Johns Manville-Ag Turf Div. (irrigation)
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain-O-Mat Sprinklers, Inc.
Safe-T-Lawn, Inc.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Irrigation Division
Toro Technology Center-Division of the Toro Co.
Weather-matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS, IMPULSE, POP-UP, HEADS

Aqua-Dial
Capital Equipment Co.

Hays Mfg. Div. Zurn Industries, Inc.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Technology Center-Div. of the Toro Co.
Weather-matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS ROTARY, POP-UP, HEADS

Aqua-Dial
Capital Equipment Co.
Hays Mfg. Div., Zurn Industries, Inc.
Johns Manville-Ag. Turf Div. (irrigation)
Melnor, Turf Irrigation Div.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Rain-O-Mat Sprinklers, Inc.
Safe-T-Lawn, Inc.
Sprinkler Irrigation Supply Co.
Thompson Manufacturing
Toro Irrigation Division
Toro Technology Center-Div. of the Toro Co.
Weather-matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS, SHRUB AND BUBBLER

Champion Brass Mfg.
Johns Manville-Ag. Turf Div. (irrigation)
National Irrigation Co.
L. R. Nelson Mfg. Co., Inc.
Perma-Rain Irrigation, Inc.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Rain-O-Mat Sprinklers, Inc.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Irrigation Division
Toro Technology Center-Div. of the Toro Co.
Weather-matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS, SPRAY, POP-UP, HEADS

Aqua-Dial
Capital Equipment Co.
Greenlawn Sprinkler Co.
Hays Mfg. Div., Zurn Industries, Inc.
Imperial Underground Sprinkler
Johns Manville-Ag. Turf Div. (irrigation)
Melnor, Turf Irrigation Div.
Moody Sprinkler Co., Inc.
National Irrigation Co.
L. R. Nelson Corporation
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corporation
Rain-O-Mat Sprinklers, Inc.
Safe-T-Lawn, Inc.
Sprinkler Irrigation Supply Co.
Thompson Manufacturing
Toro Irrigation Division
Toro Technology Center-Division of the Toro Co.
Weather-matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS, STATIONARY

Capital Equipment Co.
Greenlawn Sprinkler Co.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corporation
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Technology Center-Div. of the Toro Co.
Wet Mfg. Co., Inc.

### IRRIGATION SPRINKLERS, VALVE IN HEAD

Capital Equipment Co.
Greenlawn Sprinkler Co.
Johns Manville-Ag. Turf Div. (irrigation)
National Irrigation Co.
Rain Bird Sprinkler Mfg. Corp.
Sprinkler Irrigation Supply Co.
Toro Irrigation Div.
Toro Technology Center-Div. of the Toro Co.
Wet Mfg. Co., Inc.

### IRRIGATION, SAND SEPARATORS

National Irrigation Co.
Rain Jet Corp.
Sprinkler Irrigation Supply Co.
Wet Mfg. Co., Inc.

### IRRIGATION, SWITCHES

Lumenite Electronic Co.
National Irrigation Co.
Sprinkler Irrigation Supply Co.
Wet Mfg. Co., Inc.

### IRRIGATION SYSTEMS, COMPLETE

Boss Irrigation Div. Consolidated Pipe Mfg.
W. J. Holland Supply
National Irrigation Co.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
The Skinner Irrigation Co.
Sprinkler Irrigation Supply Co.
Toro Technology Center-Div. of the Toro Co.
Vermeer Mfg. Co.
Weather-Matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### IRRIGATION VALVES, AUTOMATIC

Aqua-Dial
Greenlawn Sprinkler Co.
Griswold Controls
Hays Mfg. Div., Zurn Industries, Inc.
Moody Sprinkler Co., Inc.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Sprinkler Irrigation Supply Co.
Toro Irrigation Div.
Toro Technology Center-Div. of the Toro Co.
Weather-matic Div./Telsco Industries
Wet Mfg. Co., Inc.

### IRRIGATION VALVES, FLOW CONTROL

Flo-Control Inc.
Greenlawn Sprinkler Co.
Griswold Controls
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Sprinkler Irrigation Supply Co.
Toro Technology Center-Division of the Toro Co.
Wet Mfg. Co., Inc.

### IRRIGATION VALVES, PRESSURE ACTIVATED

Griswold Controls
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Sprinkler Irrigation Supply Co.
Toro Technology Center-Division of the Toro Co.
Wet Mfg. Co., Inc.

### IRRIGATION, VALVES QUICK COUPLING

Flo-Control Inc.
Melnor, Turf Irrigation Div.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Rain-O-Mat Sprinklers, Inc.
Sprinkler Irrigation Supply Co.
Thompson Mfg. Co.
Toro Irrigation Division
Toro Technology Center-Div. of the Toro Co.
Weather-Matic Div., Telsco Ind.
H. N. Webster Mfg.

### IRRIGATION VALVES, SOLENOID

Greenlawn Sprinkler Co.
Griswold Controls
Hays Mfg. Div., Zurn Industries, Inc.
Melnor, Turf Irrigation Div.
National Irrigation Co.
L. R. Nelson Corp.
Rain Bird Sprinkler Mfg. Corp.
Sprinkler Irrigation Supply Co.
Toro Irrigation Division
Toro Technology Center-Div. of the Toro Co.
Weather-Matic Div., Telsco Ind.
Wet Mfg. Co., Inc.

### LEAF BLOWERS

Air Rake Mfg. Corp.
Allis-Chalmers Corp.
A.M.F. Lawn and Garden
Capital Equipment Co.
J. J. Dill Co.
E-Z Rake, Inc.
FMC Corp., Agriculture Machinery Div.
Giant-Vac Mfg. Inc.
Hahn Inc. Turf-Ag. Div.
Jacobsen Mfg. Co.
F. D. Kees Mfg. Co.
Lakes Supply Co., Inc.
Lindell Industries, Div. of Lindell Pattern Works
Papec Machine Co.
Solo, Inc.
Vandermolen Co.

### LEVELERS

DriAll, Inc.
Eversman Mfg. Co.
York Modern Corp.

### LOADERS, BOOM

Dico Co., Inc.
T. C. I. Power Products

### LOADER, SKID STEER

Clark Equipment Co.
Davis Mfg.-Div. of J I Case
Deere and Co.

Ford Tractor Operations
International Harvester
Lansdowne Equipment Co., Inc.
Massey Ferguson Inc.
Melroe Div., Clark Equipment Co.
Payline Div., International Harvester
Sperry-New Holland
T. C. I. Power Products

### LOADERS, TRACTOR MOUNTED

Arps Corp.
Bolens: FMC Corp., OPE Div.
Capital Equipment Co.
J I Case, Outdoor Power Equipment Div.
Deere and Co.
Engineering Products Co.
Erickson Corp.
Ford Tractor Operations
Howard Rotavator Co., Inc.International Harvester
Johnson Hydraulic Equip. Co.
Kubota
Lansdowne Equipment Co., Inc.
Massey-Ferguson, Inc.
Melroe Div.
Payline Div., International Harvester
Schwartz Mfg.
T. C. I. Power Products
Waldon Inc.
White Farm Equipment

### LOG SPLITTERS

Didier Mfg. Co.
Giant-Vac Mfg. Inc.
Karl Kuemmerling, Inc.
Lakes Supply Co., Inc.
Lindig Mfg. Corp.
Lupton Enterprises
Ben Meadows Co.
Olathe Mfg., Inc.
Piqua Engineering, Inc.
Ve-ri Products
Vermeer Mfg. Co.

### MASKS, DUST

Crown Chemicals
J. J. Dill Co.
Friend Mfg. Corp.
Hub States Chemical
Ben Meadows Co.
Tallman Equipment Co., Inc.
Willson Products Div., ESB Inc.

### MASKS, GAS

Crown Chemicals
J. J. Dill Co.
Hub States Chemical
Tallman Equipment Co., Inc.
Willson Products Div., ESB Inc.

### MATERIALS, HANDLING

Allis-Chamlers Corp.
B.A.G. Corp.
Ford Tractor Operations
Giant-Vac Mfg. Inc.
K-D Mfg. Co.
Magline Inc.
MB Company Inc. of Wisconsin
Melro Div., Clark Equipment Co.
Tallman Equipment Co., Inc.
Waldon, Inc.

### MISTBLOWERS, BACKPACK

Brighton By-Products Co.,Inc.
J. J. Dill Co.
Echo Chain Saw Div., Kioritz Corp. of America
Hub States Chemical
Karl Kuemmerling Inc.
Ben Meadows Co.
Solo, Inc.
Tradewinds, Inc.
T.R.E.E.S., Inc.
Vandermolen Corp.

### MISTBLOWERS, NOZZLE PARTS

John Bean Div., FMC Corp.
Cenol-Div., Burgess Vibro-crafters Inc.
Crown Chemicals
FMC Corp., Agricultural Machinery Div.
Friend Mfg. Corp.
Hub States Chemical
Red Ewald Inc.
Solo, Inc.

### MISTBLOWERS, SELF-PROPELLED

Buffalo Turbine Ag. Equipment Co.
Hub States Chemical
Karl Kuemmerling, Inc.
Bean Meadows Co.
Solo Motors, Inc.

### MISTBLOWERS, TRUCK-MOUNTED

John Beam Div., FMC Corp.
Crown Chemicals
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
Hub States Chemical
London Fog Co.
Red Ewald Inc.
Solo, Inc.

### MOISTURE METERS

AgTronics Mfg. Co.
Howard S. Crane, Inc.
Irrometer Co. Inc.
JLM Products & Design
Karl Kuemmerling, Inc.
Ben Meadows Co.
Soilmoisture Equipment Corp.
Sprinkler Irrigation Supply Co.
Turf Service Laboratory, Inc.

### MOWERS, FLAIL

BMB Company
E. L. Caldwell & Sons, Inc.
Capital Equipment Co.
Deere and Co.
Excel Industries, Inc.
FMC Corp., Ag. Machinery Div.
FMC Side-Winder
Ford Tractor Operations
International Harvester
Lehara Equipment Co., Inc.
Lehard Equipment Co., Inc.
Mathews Company
Mott Corporation
Sun-Master, Corp.
Terrain King Corp.

### MOWERS, GREENS

Capital Equipment Co.
Cooper Mfg. Co.
Ford Tractor Operations
Hahn, Inc., Turf Ag. Div.
Jacobsen Mfg. Co.
The Toro Company

### MOWERS, REEL

A. M. F. Lawn and Garden
Brouwer Turf Equipment Limited
Capital Equipment Co.
Cooper Mfg. Co.
Hahn, Inc., Turf-Ag. Div.
Husqvarna, Inc.
Jacobsen Mfg. Co.
Lakes Supply Co., Inc.
Locke Mfg. Div. Stellar Lawn Care
McDonough Power Equipment, Inc.
National Mower Co.
Roseman Mower Corp.
Roxy-Bonner, Inc.
Sarlo Power Mowers
Simplicity Mfg. Co.

### MOWERS, REPLACEMENT PARTS

A.M.F. Lawn and Garden
Austin Products
Black and Decker Mfg., Co.
Bolens: FMC Corp., OPE Div.
Ford Tractor Operations
Jacobsen Mfg. Co.
Lakeshore Equipment & Supply Co.
Lakes Supply Co., Inc.
Lawnmower Parts Mfg. Co.
Terrain King Corp.
Ve-ri Products

### MOWERS, ROTARY

Allis-Chalmers Corp.
A.M.F. Lawn and Garden
Ariens Co.
Atlas Tool & Mfg. Co.
Austin Products, Inc.
Avco New Idea
BMB Co. Inc.
The Black & Decker Mfg. Co.
Bolens: FMC Corp., OPE Div.
Brillion Iron Works
Bunton Co.
E. L. Caldwell & Sons, Inc.
Capital Equipment Co.
J. I. Case Co., Outdoor Power Equip. Div.
Deere and Co.
Engineering Products Co.
Excel Industries, Inc.
Flymo
FMC Corp., Outdoor Power Equip. Division
FMC Corp., Side-Winder
Ford Tractor Operations
Goodall Div.
Gravely Corp., Div. Clarke-Gravely
Hahn Inc., Turf-Ag. Division
Husqvarna, Inc.
International Harvester
Jacobsen Mfg. Co.
F. D. Kees Mfg. Co.
Kubota
Lakes Supply Co., Inc.
Lawn-Boy, OMC-Lincoln
Massey-Ferguson, Inc.
McDonough Power Equipment, Inc.
Moridge Mfg. Co.
Roof Mfg.
Ryan, OMC-Lincoln
Simplicity Mfg. Co.
Slope Tractor, Inc.
Solo, Inc.
Speedex Tractor Co.
Sun-Master Corp.
Terrain King Corp.
The Toro Co.
Triumph Machinery Co.
Wisconsin Marine, Inc.
Wood Brothers, Inc.
Woods, Div. of Hesston Corp.
Yazoo Mfg. Co.

### MOWERS, SICKLE BAR

Allis-Chalmers Corp.
Capital Equipment Co.
Deere and Co.
Didier Mfg. Co.

# Servis machines are built with one simple idea in mind.

## To be the best.

If you're familiar with the name, Servis, you know that we've been manufacturing rotary mowers, cutters and shredders, box scrapers, landscape rakes and rear-mounted blades for a long time. Since 1946 to be exact.

Interestingly enough, some of the first equipment we put in the field is still being used today. That's dependability.

And that kind of dependability is no accident. Servis equipment is designed to do specific jobs. And to do them better than anything else. It's also designed to last.

Take construction. Servis frameworks are unibody constructed to provide extra frame strength. And the high-stress areas are reinforced with heavy gauge tubing.

In addition, all of our rotary cutters feature safety devices to protect the tractor and cutter drive trains.

The gears and gear box shafts used on our machines are precision machined to increase strength and durability, and reduce noise.

And Servis is one of the few lines of equipment that offers you an option of blade carriers on rotary cutters. The Cyclone (dish-pan type) for cutting up to 3" brush. And the Gyro ("A" frame type) for cutting heavy 4" brush.

Of course, this is only part of our story. The point is that Servis builds a complete line of equipment with one simple idea in mind. To be the best.

So whether you've got 4" brush to cut, stalks to shred, ditches to dig, soil to move or land to level, see your Servis dealer. He's got the equipment you need.

For more information about the Servis line, contact your nearest authorized Servis dealer, or write: Austin Products, Inc., Dept. 2-75 S, P.O. Box 1590, Dallas, Texas 75221.

SERVIS

**We build equipment the way we do because you wouldn't settle for less.**

Circle 141 on free information card

Engineering Products Co.
Ferrari International Inc.
Ford Tractor Operations
International Harvester
Jari Div. Year A Round Cab Co., Inc.
Kinco Mfg.
Lakes Supply Co., Inc.
Massey-Ferguson, Inc.
Simplicity Mfg. Co.
Slope Tractor, Inc.
Solo, Inc.
Sperry-New Holland
Thomas Equipment Ltd.
Triumph Machinery Co.

### MOWERS, VERTICAL (Also See Thatcher)

BlueBird International, Inc.
Capital Equipment Co.
Hahn, Inc., Turf-Ag Div.
Jacobsen Mfg. Co.
Kinco Mfg.
Ryan, OMC-Lincoln

### MULCH BLOWERS

A. M. F. Lawn and Garden
Brighton By-Products Co., Inc.
Finn Equipment Co.
Reinco

### PARK EQUIPMENT

Allis-Chalmers Corp.
Capital Equipment Co.
Game Time, Inc. Div. of the Toro Co.
Ginther Equipment Corp.
L. L. Larson Machine Inc.

### PLOWS, VIBRATORY

Davis Mfg. Div. of J I Case
Ditch Witch Div., the Charles Machine Works, Inc.
Ditch Witch Equipment Co.
Vermeer Mfg. Co.

### POST HOLE DIGGER

Austin Products, Inc.
Bolens: FMC Corp., OPE Div.
E. L. Caldwell & Sons, Inc.
Capital Equipment Co.
Fairmont Hydraulics
Ford Tractor Operations
HMC
Hoffco, Inc.
Kubota
Lakes Supply Co., Inc.
Lansdowne Equipment Co., Inc.
Fred A. Lewis Co.
Massey-Ferguson Inc.
McCabe-Powers Body Co.
Melroe Div., Clark Equipment Co.
Tallman Equipment Co., Inc.
Tradewinds, Inc.
Vogel Tool & Die Corp.

### PRUNERS

Avco Ezee Flow Div.
Avco New Idea
Bartlett Mfg. Co.
Capital Equipment Co.
Causco Inc.
Corona Clipper Co.
Fairmont Hydraulics
The Fanno Saw Works
Friend Mfg. Co.
Ginther Equipment Corp.
HMC
Haynes Mfg. Co., Inc.
Karl Kuemmerling, Inc.
Limb-Lopper Co., Inc.
Ben Meadows Co.
New Draulics, Inc.
H. K. Porter, Inc.
Seymour Smith & Son, Inc.
Tallman Equipment Co., Inc.

### PUMPS (Also See Sprayers, Complete Power Unit)

Ace Pump Corp.
Aurora Pump Div., NY Air Brake
John Blue Co.
Contree Sales
Crown Chemicals
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
Hahn, Inc., Turf-Ag. Div.
HMC
Homelite, A Div. of Textron
Hub States Chemical
H. D. Hudson Mfg. Co.
Hydraulic Products Co., Inc.
Hypro, Div. Lear Siegler, Inc.
ITT Marlow
L. L. Larson Machine, Inc.
Lockwood Corp.
Master Mfg. Co.
Minnesota Wanner Co.
The F. E. Myers Co.
Oberdorfer Foundries, Inc., Agri. Pump Div.
Proven Pumps Corp.
Red Ewald Inc.
Robco, Inc.
Root-Lowell Corp.
Simplex Mfg. Co.
Sprinkler Irrigation Supply Co.
Tallman Equipment Co., Inc.
Universal Motor Division
Viking Pump Co.

### PUMPS, CENTRIFUGAL

Allis-Chalmers Corp
Aurora Pump Div., NY Air Brake
Beard-Poulan Div., Emerson Electric Co.
Berkley Pump Co.
John Blue Co.
The Broyhill Co.
Contree Sales
J. J. Dill Co.
FMC Corp. Agricultural Machinery Div.
Homelite, A Div. of Textron
Hypro Div./Lear Siegler, Inc.
Lockwood Corp.
Master Mfg. Co.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
The F. E. Myers Co.
Oberdorfer Foundries Inc., Agri. Pump Div.
Red Ewald Inc.
Robco, Inc.
Simplex Mfg. Co.
Sprinkler Irrigation Supply Co.
Stanley Hydraulic Tools
Tallman Equipment Co., Inc.
Universal Motor Div., Medalist Ind.
Viking Pump Co.

### RAKES, ALL PURPOSE

Avco Ezee Flow Div.
Howard S. Crane Inc.
Haynes Mfg. Co., Inc.
F. D. Kees Mfg. Co.
Loft-Kellogg Seed, Inc.
Tallman Equipment Co., Inc.
York Modern Corp.

### RAKES, LANDSCAPING

Arps Corp.
Austin Products, Inc.
Brillion Iron Works
E-Z Rake, Inc.
Ford Tractor Operations
Fuerst Brothers, Inc.
Lakes Supply Co., Inc.
Loft-Kellog Seed Inc.
Roseman Mower Corporation
Smithco, Inc.
Standard Golf Co.
Tallman Equipment Co., Inc.
Triumph Machinery Co.
York Modern Corp.

### REELS, HOSE

American Hose & Reel Co.
The Broyhill Co.
Crown Chemicals
Deere and Co.
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
Clifford B. Hannay & Son, Inc.
Hub States Chemical
Red Ewald, Inc.

### RESPIRATORS

American Optical Co.
Brighton By-Products Co., Inc.
Crown Chemical
J. J. Dill Co.
Friend Mfg. Co.
Hub States Chemical
Ben Meadows Co.
Safeline Products
Welsh Mfg. Co.
Willson Products Div., EBS Inc.

### ROCK PICKERS

Armor Metal Products
William Bergman Co.
Bridgeport Imple. Works, Inc.
Howard S. Crane, Inc.
Lockwood Corp.

### ROLLERS, TURF

Brinly Hardy Co., Inc.
Hadfield Sod Roller Co.
Maxey Mfg. Co., Inc.
Rosco Mfg. Co.
Ryan, OMC-Lincoln
Simplicity Mfg. Co.

### ROOT-FEEDING RODS

Ross Daniels, Inc.
Ferti-Feeder
H. D. Hudson Mfg. Co.
Karl Kuemmerling, Inc.
Minnesota Wanner Co.

### SAFETY BELTS AND SADDLES, TREE CLIMBERS

Karl Kuemmerling, Inc.
Ben Meadows Co.
Safety Test & Equipment Co., Inc.

### SAFETY EQUIPMENT

American Optical Corp.
J. J. Dill Co.
General Scientific Equip. Co.
Glendale Optical Co., Inc.
Karl Kuemmerling, Inc.
Martindale Electric Co.
Ben Meadows Co.
Red Ewald Inc.
Safeline Products
Tallman Equipment Co., Inc.
Welsh Mfg. Co.
Willson Products Div., ESB, Inc.

### SAWS, CHAIN, ELECTRIC

Beaird-Poulan Div., Emerson Electric Co.
DESA Industries, Inc.
Karl Kuemmerling, Inc.
Jobu Chain Saws
Fred A. Lewis Co.
Lombard Power Equipment
McCulloch Corp.
Omark Industries, Inc. Oregon Saw Chain Div.
Partner Industries of America Inc.
Pioneer, OMC-Lincoln
Roper Corp.
Sabre Saw Chain, Inc.
Skil Corp.
Stihl American, Inc.
Tallman Equipment Co., Inc.
Tilton Equipment Co.
Ve-ri Products
Village Blacksmith, McGraw Edison Portable Electric Tool Div.
Waco Industries, Inc.

### SAWS, CHAIN, GASOLINE

Allis-Chalmers Corp.
Beaird-Poulan Div., Emerson Electric Co.
Campbell-Hausfeld Co., Lombard Chain Saws
Deere & Co.
DESA Industries, Inc.
Echo Chain Saw Div., Kioritz Corp. of America
Ford Tractor Operations
Homelite, Div. of Textron
Husqvarna, Inc.
Jobu Chain Saws
Karl Kuemmerling, Inc.
Lakes Supply Co., Inc.
Landcaster Pump & Mfg. Co., Inc.
Lombard Power Equipment
Massey-Ferguson Inc.
McCulloch Corp.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
Omark Industries, Inc., Oregon Saw Chain Div.
Partner Industries of America Inc.
Pioneer, OMC-Lincoln
Roper Corp.
Sabre Saw Chain, Inc.
Skil Corp.
Solo, Inc.
Stihl American, Inc.
Tallman Equipment Co., Inc.
Tilton Equipment Co.
T.R.E.E.S., Inc.
Ve-ri Products
Waco Industries, Inc.
White Farm Equipment

### SAWS, CHAIN, HYDRAULIC

Causco, Inc.
Fairmont Hydraulics
Friend Mfg. Corp.
Jobu Chain Saws
Limb Lopper Co., Inc.
McCulloch Corp.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
New Draulics, Inc.
Omark Industries, Inc. Oregon Saw Chain Div.
Partner Industries of America Inc.
Pioneer, OMC-Lincoln
Roper Corp.
Sabre Saw Chain, Inc.
Stanley Hydraulic Tools
Tilton Equipment Co.
Waco Industries, Inc.

### SAWS, CHAIN, PARTS

Beaird-Poulan Div., Emerson Electric Co.
Campbell-Hausfeld Co., Lombard Chain Saws
Echo Chain Saw Div., Kioritz Corp. of America
Fairmont Hydraulics
Homelite, Div. of Textron
Husqvarna Inc.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
Tallman Equipment Co., Inc.
T.R.E.E.S., Inc.
Waco Industries, Inc.

### SAWS, CIRCULAR, ELECTRIC

Friend Mfg. Corp.
Skil Corp.
Stihl American, Inc.
Tallman Equipment Co., Inc.

### SAWS, CIRCULAR, GASOLINE

Husqvarna Inc.
Stihl American, Inc.
Tallman Equipment Co., Inc.

### SAWS, MANUAL

Corona Clipper Co.
Deere and Co.
The Fanno Saw Works
Friend Mfg. Corp.
Karl Kuemmerling Inc.
Roper Corp.
Tallman Equipment Co., Inc.


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**Do Your Mowing**
**with BOB-CAT**

◀ 61" Riding Mower

A rugged, heavy duty, professional mower specially designed for high production mowing. Has exceptional maneuverability with independent wheel drive, zero turning radius and simplified controls.

- Twin Hydrostatic Transmissions
- Torque Converter
- Finger-Tip Blade Height Control
- Zero Turning Radius
- 19.5 H.P. Twin Cylinder Onan Engine

32"/36"/48" Self Propelled ▶

- Big 10 h.p. Engine
- Independent Wheel Drive
- Zero Turning Radius
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- Speeds Up to 4 mph
- Large Capacity Grasscatcher
- Sulky Available

◀ 21" Rear Bagger

- All-Metal Grass Catcher
- Engines From 4 to 5 h.p. Heavy Duty — Two & Four Cycle
- Clean Trim 3 Sides
- Steel Wheels
- Greaseable Ball Bearings

*AUTHORIZED SERVICE STATIONS NATIONALLY*

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the TUFF-CATS
MANUFACTURER OF OUTDOOR POWER EQUIPMENT SINCE 1951
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### SCRAPERS
Austin Products
Deere & Co.
Ford Tractor Operations
International Harvester
Massey-Ferguson, Inc.
Payline Division, International Harvester

### SEEDERS, DISC-TYPE
Capital Equipment Co.
Jacobsen Mfg. Co.
Loft-Kellogg Seed, Inc.
Simplex Mfg. Co.

### SEEDERS, HOPPER-TYPE
Allis-Chalmers Corp.
Avco New Idea
Brillion Iron Works
Capital Equipment Co.
Cyclone Seeder Co., Inc.
Garber Seeders, Inc.
Herd Seeder Co., Inc.
F. D. Kees Mfg. Co.
Lakes Supply Co., Inc.
Lely
L. L. Larson Machine, Inc.
Loft-Kellogg Seed, Inc.
Simplex Mfg. Co.

### SEEDERS, HYDRAULIC
Bowie Industries, Inc.
Capital Equipment Co.
Finn Equipment Co.
Reinco, Inc.
Simplex Mfg. Co.
Spray Baby, Inc.

### SHARPENER, CHAIN SAW
Foley Mfg. Co.
Granberg Industries Inc.
Karl Kuemmerling, Inc.
Tallman Equipment Co., Inc.
Travelrain Power Sprinkler Co.
T.R.E.E.S., Inc.
Ve-ri Products

### SHARPENER, MOWERS & CUTTERS
Foley Mfg. Co.
Tallman Equipment Co., Inc.
Travelrain Power Sprinkler Co.

### SHEARS
Black & Decker
Corona Clipper Co.
Friend Mfg. Co.
Karl Kuemmerling, Inc.
Ben Meadows Co.
H. K. Porter, Inc.
Seymour Smith & Son, Inc.

### SHREDDERS
(Also See Chippers)
Atlas Tool and Mfg. Co.
Austin Products
Capital Equipment Co.
W-W Grinder Corp.
Haynes Mfg. Co., Inc.
F. D. Kees Mfg. Co.
Kemp Shredder Co.
Lindig Mfg. Co.
MTD Products, Inc.
Piqua Engineering Inc.
The Roto-Hoe Co.
Royer Foundry & Machine Co.
Sun Master Corp.

### SNOW THROWER
Allis-Chalmers Corp.
A.M.F. Lawn and Garden
Atlas Tool and Mfg. Co.
Avco New Idea
Bolens: FMC Corp., OPE Div.
J. I. Case Co., Outdoor Power Equip. Div.
Deere & Co.
Engineering Products Co.
Excel Indsturies Inc.
Ferrari International Inc.
FMC Corp., Outdoor Power Equip. Div.
Ford Tractor Operations
Gravely Corp., Div. Clarke-Gravely
International Harvester
Jacobsen Mfg. Co.
Lakes Supply Co., Inc.
Massey-Ferguson, Inc.
The Roto-Hoe Co.
Sweepster, Inc.
Wisconsin Marine, Inc.

### SOD CUTTERS
Beck Mfg. Co.
Big Brute Turf Cut
Capital Equipment Co.
Jacobsen Mfg. Co.
Ryan, OMC-Lincoln

### SOD HARVESTERS
Beck Mfg. Co.
Bermuda King, Inc.
Big "J" Products
Brouwer Turf Equipment Ltd.
Nunes Mfg.
Princeton Mfg. Co.

### SOIL TESTERS
Agro Care
Brighton By-Products Co., Inc.
Capital Equipment Co.
Contree Sales
Loft-Kellogg Seed, Inc.
Ben Meadows Co.
Soilmoisture Equipment Corp.
Standard Golf Co.
Sudury Laboratory

### SPADE, TREE
Instant Shade Tree Inc.
Tallman Equipment Co., Inc.
Vermeer Mfg. Co.

### SPIKERS
Jacobsen Mfg. Co.
Power Spike Mfg. Co.
Smithco, Inc.

### SPRAY BOOMS
Agro Care
John Blue Company
The Broyhill Co.
Contree Sales
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
Hahn Inc., Turf-Ag. Div.
Hub States Chemical
H. D. Hudson Mfg. Co.
L. L. Larson Machine, Inc.
Lockwood Corp.
Master Mfg. Co.
The F. E. Myers Co.
Red Ewald, Inc.
Simplex Mfg. Co.
Waymark

### SPRAY GUNS
Agro Care
Bar-Way Mfg. Co.
The Broyhill Co.
Campbell Hausfeld Co., Lombard Chain Saw
Contree Sales, Inc.
Crown Chemicals
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
W. L. Hamilton Co.
Hub States Chemical
H. D. Hudson Mfg. Co.
L. L. Larson Machine, Inc.
Lockwood Corp.
F. E. Myers Co.
Minnesota Wanner Co.
Red Ewald Inc.
Spraying Systems Co.

### SPRAY NOZZLES, COMPLETE
Agro Care
Beeco Products Co.
Bete Fog Nozzle, Inc.
The Broyhill Co.
Campbell Hausfeld Co.
Contree Sales
Crown Chemicals
Deere and Co.
Delavan Mfg. Co.
J. J. Dill Co.
FMC Corp. Agri. Machinery Div.
Friend Mfg. Corp.
W. L. Hamilton Co.
Hub States Chemical
H. D. Hudson Mfg. Co.
L. L. Larson Machine, Inc.
Minnesota Wanner Co.
F. E. Myers Co.
Rain Bird Sprinkler Mfg. Corp.
Rain Jet Corp.
Red Ewald Inc.
Simplex Mfg. Co.
Spraying Systems Co.

### SPRAYERS, CART OR WHEELBARROW TYPE
Argo Care
John Blue Co.
The Broyhill Co.
Campbell Hausfeld Co.
Capital Equipment Co.
Century Engineering Corp.
Crown Chemicals
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Hub States Chemical
H. D. Hudson Mfg. Co.
L. L. Larson Machine, Inc.
Master Mfg. Co.
Minnesota Wanner Co.
F. E. Myers Co.
Red Ewald, Inc.
Smithco, Inc.
Solo, Inc.
Universal-Gerwin Div. Leigh Products, Inc.

# Cut the cost of expensive horsepower and expensive manpower.

## Bolens® HT-20 Tractor.

Jobs too small for big specialized equipment can add up to a punishing expense in manpower. Hauling. Mowing. Tilling. Grading. Loading. Trenching. Backfilling.

The intermediate size Bolens HT-20 Tractor can cut that expense by quickly adapting to over a dozen custom matched attachments including mower, tiller, bucket loader, back hoe, rakes, blades and brooms.

The foot operated hydrostatic transmission goes from forward to reverse without clutching or changing gears. Perfect for close-quarters work. Allows optimum power/speed combinations with hands free to operate hydraulics.

More than just a lawn and garden tractor, the HT-20 is powered by a 19.5 hp twin cylinder Kohler engine. The channeled steel frame, massive rear axle/differential and heavy duty front axle give a full day's work. Day after day.

Get more value from your big horsepower and expensive manpower. With the rugged HT-20. It fits right in-between. To save money on both ends.

## Bolens Mulching Mowers.™

They cut the grass and the workload. In one pass. When a Bolens Mulching Mower cuts the grass, it also cuts and recuts the clippings into tiny particles that are blown down into the turf. There, they disappear and quickly decompose. No clippings. No clean-up. No thatch build-up. The fine mulch actually feeds the turf while the crew moves on to other jobs.*

3, 4 and 5 hp models are specially built for commercial and institutional use. Straight-thru steel axles, rugged all-steel deck, tough one-piece handle and positive cutting height adjustment. Bolens Mulching Mowers. Tough, economical answers to your continuing turf maintenance program.

*For a free copy of a University study on nitrogen return, contact FMC Corporation, Port Washington, Wisconsin 53074.

**See the complete line of Bolens commercial power equipment at your nearest dealer. For his name and address send the free response card or write, FMC Corporation, Port Washington, Wisconsin 53074.**

**FMC**
**Consumer Products**

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# KEES

*Better lawn care products to do the job easier & faster*

Model 21F35 illustrated

**POWERMOW**

NEW!

New from F. D. Kees, this powerful 21" mower with heavy 12 gauge steel deck and frame is built to stand up under rough use and keep on working year after year.

- Choice of 4 cycle, 3.5 or 5 hp Briggs & Stratton engine with high inertia flywheel.
- Heavy gauge steel handle folds down without tools for easy transport and storage. Rigid "T" type handle also available.
- Special one-piece, suction-lift blade with tempered cutting edges. Adjustable cutting heights 1 to 3.5 inches.
- Heavy-duty steel wheels with grease fitting and sealed ball bearings. 8 x 1.75 tires.
- Special crankshaft protector. Oil minder for visual oil check.
- Extra large 1½ bushel nylon bag grass catcher available.

Model FN 100

**POWERAKE®**

(THATCHER)

■ Rakes out thatch ■ Rakes cleaner with less effort. Powerful 5 hp engine. ■ Cleans 20" swath ■ 28 hardened steel plate, self-cleaning fingers ■ Raking assemblies interchangeable with aerator assembly ■ 2" raking height adjustment ■ Semi self-propelled

Since 1874

*Write P.O. Box 859*

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Beatrice, Nebraska 68310

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R1

### SPRAYERS, COMPLETE POWER UNIT (Also See Pumps)

Agro Care
John Bean Div., FMC Corp.
Bowie Industries, Inc.
The Broyhill Co.
Buffalo Turbine Ag. Equip Co.
Campbell Hausfeld Co.
Capital Equipment Co.
R. E. Chapin Mfg. Works, Inc.
Contree Sales
Howard S. Crane, Inc.
Crown Chemicals
Curtis Dyna Products Corp.
J. J. Dill Co.
Edwards Mfg. Co.
Ferrari International Inc.
Fimco, Inc.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
The Guildsman Co.
Hahn Inc., Turf-Ag. Div.
Hays Spray Gun Co.
Hills Liqui System
Hub States Chemical
H. D. Hudson Mfg. Co.
Hydro Turf
L. L. Larson Machine, Inc.
Lely
Lockwood Corp.
Mars Industries Inc.
Master Mfg. Co.
Minnesota Wanner Co.
F. E. Myers Co.
National Chemsearch
National Foam System, Inc.
Red Ewald, Inc.
Robco, Inc.
Root-Lowell Corp.
Simplex Mfg. Co.
Smith & Co., Inc. D. B.
Tradewinds, Inc.
Tree Ject Company
Universal-Gerwin Div., Leigh Products, Inc.
The Vandermolen Corp.
Walsh Mfg. Co.
Waymark

### SPREADERS, HOPPER-TYPE

Arctic Mizer Mfgs., Inc.
John Blue Co.
Howard S. Care, Inc.
The Cyclone Seeder Co., Inc.
J. J. Dill Co.
Dobbins, Inc.
Gandy Co.
Ginther Equipment Corp.
Hahn Inc., Turf-Ag. Div.
Herd Seeder Co., Inc.
Highway Equipment Co.
Hub States Chemical
F. D. Kees Mfg. Co.
L. L. Larson Machine, Inc.
Lely
Loft-Kellogg Seed, Inc.
Proturf Div., O. M. Scott and Sons
Swenson Spreader & MFG. Co.
Waymark
Willmar Mfg. Co.

### STUMP CUTTER/REMOVER

FMC Corp., Sweeper Div.
Hesston Corp., Lawn Equipment Div., The Toro Co.
Huss Sales and Service
Karl Kuemmerling, Inc.
Levco Mfg., Inc.
Olathe Mfg., Inc.
Valley Products Corp.
Vermeer Mfg. Co.

### SWEEPERS, LAWN (Also See Broom, Vacuum)

A.M.F. Lawn and Garden
Atwater Strong Div., Gougler Industries, Inc.
Avco New Idea
Brinly Hardy Co., Inc.
Capital Equipment Co.
J I Case, Outdoor Power Equipment Division
Clark Div., Clarke-Gravely Corp.
Excel Industries, Inc.
E-Z Rake Inc.
Ford Tractor Operations
Giant-Vac Mfg. Inc.
W-W Grinder Corp.
International Harvester
Jacobsen Mfg. Co.
Lakes Supply Co., Inc.
Lindall Industries, Div. of Lindell Pattern Works
Mars Industries, Inc.
M-B Company of Wisconsin
Mid-State Metal Casters & Mfg. Co.
Nunes Mfg.
Parker Sweeper Co.
Sweepster, Inc.
Tennant Co.
Turf Vac Corp.

### TANKS, SPRAY

Agro Care
John Blue Co.
The Broyhill Co.
Capital Equipment Co.
Contree Sales
Crown Chemicals
J. J. Dill Co.
FMC Corp., Ag. Machinery Div.
Friend Mfg. Corp.
Hahn Inc., Turf-Ag. Div.
Hemco Corp.
Hub States Chemical
L. L. Larson Machine, Inc.
Lely
Raven Industries, Inc.
Red Ewald, Inc.
Robco, Inc.
Simplex MFG. Co.
Universal-Gerwin Div., Leigh Products Inc.

### THATCHERS (See Mowers, Vertical)

Arctic Mizer Mfrs., Inc.
Bluebird International, Inc.
Capital Equipment Co.
E-Z Rake, Inc.
Fuerst Brothers, Inc.
Giant-Vac Mfg., Inc.
Hahn Inc., Turf-Ag. Div.
Jacobsen Mfg. Co.
F. D. Kees Mfg. Co.
Kinco Mfg.
Mathew Co.
Parker Sweeper Co.
Ryan, OMC-Lincoln
Swenson Spreader & Mfg. Co.

### TILLERS

A.M.F. Lawn and Garden
Atlas Tool & Mfg. Co.
Auto Hoe, Inc.
Black and Decker Mfg. Co.
Bolens: FMC Corp., OPE Div.
Capital Equipment Co.
J. I. Case, Outdoor Power Equip. Div.

Deere & Co.
Engineering Products Co.
Ferrari International Inc.
FMC Corp., Outdoor Power Equip. Div.
Ford Tractor Operations
Giant-Vac Mfg. Inc.
Gravely, Div. Clarke-Gravely
Hahn Inc., Turf-Ag. Div.
HMC
Howard Rotavator Co., Inc.
International Harvester
Kubota
Lakes Supply Co., Inc.
Lely
Massey-Ferguson, Inc.
The Roto-Hoe Co.
Simplicity Mfg. Co.
Solo Inc.
Tradewinds, Inc.
White Farm Equipment
Yazoo Mfg. Co.

### TOOLS, HAND, HYDRAULIC, PNEUMATIC

Fairmont Hydraulics
The Fanno Saw Works
Ginther Equipment Corp.
Skil Corp.
Stanley Hydraulic Tools
Tallman Equipment Co., Inc.

### TOP DRESSERS

Jabobsen Mfg. Co.
Ryan, OMC-Lincoln

### TRACTORS, 8-12 HP

Agro Care
A.M.F. Lawn and Garden
Ariens Company
Avco New Idea
Bolens: FMC Corp., OPE Div.
Capital Equipment Co.
J I Case, Outdoor Power Equip Div.
Deere & Co.
FMC Corp., Outdoor Power Equip. Div.
Ford Tractor Operations
General Electric Co., Outdoor Power Equipment Operation
Gravely, Div. Clarke-Gravely
International Harvester
Kubota
Lakes Supply Co., Inc.
Massey-Ferguson, Inc.
Simplicity Mfg. Co.
Speedex Tractor Co.
The Toro Co.
Wheel-Horse Products

### TRACTORS, 13-20 HP

Avco New Idea
John Blue Co.
Bolens: FMC Corp., OPE Div.
Capital Equipment Co.
J I Case, Outdoor Power Equip Div.
Deere & Co.
Engineering Products Co.
Ferrari International Inc.
FMC Corp., Outdoor Power Equip. Div.
Ford Tractor Operations
Gravely, Div. Clarke-Gravely Corp.
Hesston Corporation, Lawn Equip. Div.
International Harvester Co.
Jacobsen Mfg. Co.
Kubota
Lakes Supply Co., Inc.
Massey-Ferguson, Inc.
Satoh Tractor c/o NEDA
Simplicity Mfg. Co.
The Toro Co.
Tradewinds, Inc.
Wheel-Horse Products
White Farm Equipment

### TRACTORS, 21-60 HP

Capital Equipment Co.
Deere & Co.
Ferrari International Inc.
International Harvester
Kubota
Massey-Ferguson, Inc.
Payline Div., International Harvester
Satoh Tractor c/o NEDA
Simplicity Mfg. Co.
Slope Tractor, Inc.
Tradewinds, Inc.
Wheel Power Corp.

### TRACTORS, 61-150 HP

Deere & Co.
International Harvester
Jacobsen Mfg. Co.
Massey-Ferguson, Inc.
Payline Div. International Harvester
Simplicity Mfg. Co.
Slope Tractor, Inc.
White Farm Equipment

### TRACTORS, 151 and up HP

Allis-Chalmers Corp.
Deere & Co.
International Harvester
Payline Div., International Harvester
Simplicity Mfg. Co.
White Farm Equipment

### TRACTORS, CRAWLERS

Allis-Chalmers Corp.
Deere & Co.
International Harvester Co.
Massey-Ferguson Inc.
Payline Div., International Harvester

### TRAILERS

Agro Care
Beatty Trailers
Bock Industries, Inc.
The Champion Co.
Clark Equipment Trailer Div.
Howard S. Crane, Inc.
Deere & Co.
Ditch Witch Div., The Charles Machine Works, Inc.
Ditch Witch Equipment Co.
Ditch Witch of San Diego
Fayette Division, Dayton-Walther Corp.
Ginther Equipment Corp.
Harvestall Industries, Inc.
Holsclaw Bros., Inc.
Jacobsen Mfg. Co.
Lakeside Mfg. Corp.
Lansdowne Equipment Co., Inc.
Magline, Inc.
Maxey Mfg. Co., Inc.
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Miller Tilt-Top Trailers, Inc.
Red Ewald Inc.
Rogers Bros.
Schwartz Mfg.
The Snow Company

The Quick Cut That Never Tires!

GRASSHOPPER

" . . . the *quickest* mower I've ever ridden!"

That describes the ride Grasshopper has given experienced lawn-maintenance people everywhere. They've just discovered mower maneuverability . . . the ability to mow around objects quickly and with authority. Command and instant response . . . that's Grasshopper.

And it's all done with two levers from a natural sitting position. Operator comfort and rugged construction make certain man and mower never tire.

Why not call us **now** for your demonstration ride?

the GRASSHOPPER

Manufactured by
**MORIDGE MANUFACTURING, INC.**
(316) 345-6301 / Moundridge, Kansas 67107

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Vermeer Mfg. Co.
Yazoo Mfg. Co.

### TRASH COMPACTORS
Deere and Co.

### TREE INJECTORS
Agro Care
Contree Sales
Creative Sales
Crown Chemicals
Ben Meadows Co.
Product Development International

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CareTree Systems
Melroe Div. Clark Equip. Co.
Princeton Mfg. Co.
Schutt's Equipment Co.
Vermeer Mfg. Co.

### TREE WRAPPINGS
Ross Daniels, Inc.
Karl Kuemmerling, Inc.
Tree Guying Systems Inc.

### TRENCHER
Davis Mfg., Div. of J I Case
Digz-All Trencher Co.
Ditch Witch Div., The Charles Machine Works, Inc.
Ditch Witch Equipment Co.
Ditch Witch of Columbus, Inc.
Ditch Witch of San Diego
Ground Hog, Inc.
Lansdowne Equipment Co., Inc.
Merritt Equipment Service, Inc. D/B/A Ditch Witch of Georgia
Sperry-New Holland
Towner Mfg. Co.
Vermeer Mfg. Co.

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Avco New Idea
Black & Decker Mfg. Co.
Capital Equipment Co.
Corona Clipper Co.
Deere and Co.
Gielow Co., Inc.
Grandberg Industries Inc.
HMC
Karl Kuemmerling, Inc.
McCulloch Corp.
H. K. Porter, Inc.
Seymour Smith & Son, Inc.
Stihl American, Inc.
Tallman Equip. Co., Inc.
Village Blacksmith, McGraw Edison
Portable Electric Tool Div.
Weed Eater, Inc.

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Asplundh Chipper Co.Div., Asplundh Tree Expert Co.
McCabe-Power Body Co.

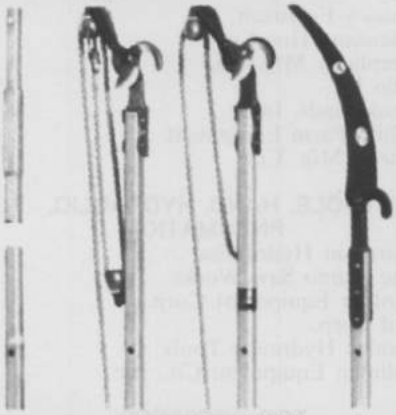
### TRUCK, LIGHT-HAULING, UTILITY
Agro Care
Club Car, Inc.
E-Z-Go Car Div. Textron Inc.
Ginther Equipment Corp.
HMC
International Harvester
Jacobsen Mfg. Co.
McCabe-Power Body Co.

### TURF VEHICLES
Agro Care
Capital Equipment Co.
Club Car, Inc.
Ginther Equipment Corp.
Jacobsen Mfg. Co.
Jeep Corp.
Massey-Ferguson, Inc.
Pargo, Inc.
Promark Corp.
Ryan, OMC-Lincoln
Smithco, Inc.
The Snow Co.
The Toro Company

### VACUUMS
A.M.F. Lawn and Garden
Arctic Mizer Mfrs., Inc.
Ariens Co.
Billy Goat Industries, Inc.
Capital Equipment Co.
Clarke Div., Clarke-Gravely Corp.
E-Z Rake, Inc.
Mid-States Metal Casting & Mfg. Co.
Satco-Systems Inc.
Turf Vac Corp.
Woods, Div. of Hesston Corp.

### WINCH
(Also See Hoist)
Fairmont Hydraulics
Hoffco, Inc.
Maasdam Pow'r Pull, Inc.
McCabe-Powers Body Co.
Schwartz Mfg.
Tallman Equipment Co., Inc.


# BARTLETT
## Tree Trimmer with Fiberglass Handle



Features single-pulley (1¼" cap.) or double-pulley (1½" cap.) tree trimmer head section, and square-end mount pole saw head section with 4 ft., 6 ft. or 8 ft. extension sections with built-in, ALL-FIBERGLASS CONNECTING SLEEVE, and polypropylene rope.

Catalog free on request.

**BARTLETT MANUFACTURING CO.**
**3009 E. Grand Blvd.**
**Detroit, Mich. 48202**
**Phone (Area 313) 873-7300**

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# TRELAN
*"Whole Tree Chipper"*

New forward discharge spout designed for the tree services.

"Trelan is the machine I've dreamed of for years."
Robert Klausing
Klausing Tree Service
New Lenox, Ill.

**STRONG**
**MANUFACTURING COMPANY**

498—8 Mile Rd., Remus, Mich.
Phone (517) 561 7591

Circle 131 on free information card

# Skilsaw® 1602 electric chain saw. The electric saw with centrifugal clutch.

Push-button oiler helps reduce friction between bar and chain, extends service life.

Safety switch helps prevent accidental starts. Operator must unlock trigger before saw will operate.

AC/DC motor operates on house current, generator or alternator. Burnout-protected motor withstands periodic overloads, sustained use.

Double-insulated for extra safety.

Ten foot cord gives good range without need for extension cord.

14" reversible cutting bar.

Centrifugal clutch—
a special feature of the Skil electric chain saw:
- Helps reduce bucking & kick-back so saw cuts smoothly.
- Protects motor, reduces wear on bearings and gears.

Oil level indicator shows when to refill.

SKIL®

Circle 142 on free information card

# "I like to send trees into winter in good, healthy condition. That's why I feed in the fall with Jobe's Spikes."

Frank Lamphier, Superintendent Aspetuck Valley Country Club, Weston, Connecticut

"Last winter, we had three weeks when the temperature was never above 10 degrees. Weather like that is rough on trees, so I believe in sending them into winter in the best possible condition. We use Jobe's Spikes on everything in the fall...willows, evergreens, maples, all our trees and shrubs."

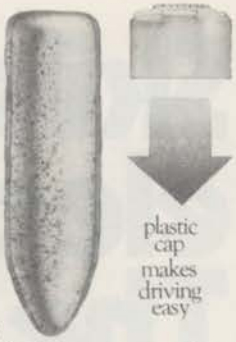
## Jobe's makes good fall or winter fill-in work.

When work slacks off, it's time to get busy with Jobe's® Tree and Shrub Spikes. It helps eliminate one chore from the busy spring-summer months, and it's good for the trees.

## Roots grow in the fall, so feed them in the fall.

Feeding with Jobe's Spikes in the fall while roots are growing helps overcome weakness brought on by summer heat, lack of moisture and ravages of insects. Helps trees get through winter in shape for a strong start in the spring. Just pound Jobe's Spikes into moist ground at the dripline at the rate of 1 per inch of trunk diameter.

Frank Lamphier says, "Jobe's Spikes are long lasting. When we use them in the fall, the trees get nourishment for the winter. Then, when spring rains start, the balance of the fertilizer is released to shoot them off for spring. We think one Spike does more good than one to two pounds of ordinary fertilizer."




## "Jobe's Spikes work!"

"We started 12-inch pine seedlings 4 years ago, and now they're 6 to 8 feet tall. We fed them at transplanting with Jobe's Spikes and have fed them ever since with Jobe's. Growth like that really sold me." University leaching studies have shown that Jobe's Spikes are as effective as drilled fertilizer. Rainwater carries nutrients from the Spike to the root zone to a depth of at least 24 inches.

Jobe's Spikes are better than surface-applied fertilizer. You don't worry about run-off losses or about burning turf or causing excessive turf growth around trees.

## "You can just tap them in with a hammer in moist ground."

A hammer is all the equipment you need with Jobe's Spikes. No bulky auger to carry from job to job. Nothing to break. No maintenance costs. No fertilizer bags to tear or spill.

Jobe's Spikes are a pre-measured amount of 16-8-8 fertilizer formed into a rigid, easy-to-drive spike.

## "Jobe's Spikes don't take much space, or time."

"I can send a man out on a 3-wheel cart with enough Spikes to last all day.

"Working fast is important because I have just 7 men, and only 4 year-round. We're working on a major landscape program with trees and shrubs to improve the looks of the course. Jobe's Spikes really save us time."

Jobe's Evergreen Spikes 12-6-8 and Fruit Tree Spikes 5-15-15 are now available in bulk packs. They can be combined for shipping with Tree and Shrub Spikes.

Call your local Jobe's distributor or order direct. $30 per case (105 Spikes) prepaid, 5 case minimum. 15 or more cases, $25 per case.

The easy method for professional tree care. International Spike, Inc., 462 East High Street, Lexington, Kentucky 40508.



Circle 140 on free information card

# Industry News

## Glyphosate, Paraquat Effects On Seed Germination Studied

Effects of glyphosate and paraquat on turfgrass seed germination were evaluated recently in research conducted at Beltsville, Md., Agricultural Research Center carried out by Dayton L. Klingman and J. J. Murray.

Tests showed that glyphosate caused little effect on germination of Kentucky bluegrass, red fescue and tall fescue when applied directly over the seed on the soil surface.

Paraquat sprayed directly over the seed on the soil surface prevented germination of most of the seeds on the three grass species. Covering seeds on the soil surface with clippings from grass turf sprayed with paraquat greatly reduced germination. About half of those that germinated either died later or were severely chlorotic, it was reported in *Weed Science*. Covering seeds on the surface of the soil with clippings from turf that had been sprayed with glyphosate did not significantly reduce the number of seedlings established.

## Artificial Turf Makes Gains In Expanding Sales Market

"Plastic grass," artificial turf, may take its lumps from NFL owners, football players and stadium owners but it is finding plenty of running room in other markets.

The turf manufacturers are shifting the market from football stadium into other sales areas and finding it greener there. American Biltrete now sells a covering for tennis courts, gymnasiums and in other indoor and outdoor uses while Monsanto Co.'s Astroturf is enjoying a new market in automobile floors and thresholds, patios, pool decks, putting greens and grave coverings. Highway medians and landscaping are the recent domains of 3M's Tartan product. Its Tartan Turf rated highest for safety trials on football fields it covers.

Although players complain of skin burns, injuries and poor performances caused by artificial turf, and have had some bad experiences as in the case of Miami, Fla., which threw out $250,000 worth of two year old, treacherous, slippery, and fading turf, the future isn't closed. Since natural grass can't withstand punishment by play, research will likely try to develop a safe and easy playing material.

## Trees Provide Varied Uses As Insulatory Energy Savers

The use of trees as shade devices extends for centuries but now a Cleveland, Ohio contractor is suggesting their use as insulatory and energy saving helps for the home.

As part of his check list to cut energy needs for heating homes he builds as much as 45 percent, Robert F. Schmitt suggests planting evergreen material on the building's north side with extensive use of deciduous trees to the south. This is beneficial, he says, since the evergreens help shield out the winter wind and chill as the deciduous trees allow direct sunshine. In summer, the deciduous provide shade for the house so less air conditioning is needed.

## Gypsy Moths Controlled With New Market Chemical

Thompson-Howard Chemical Company has introduced a new chemical product, Dimilin chitin inhibitor, for control of gypsy moths.

When applied by air at low levels, the chemical reported nearly 100 percent control, based upon larval kill and egg mass counts. It kills the pests within two or three days when they reach a new molt and continues control for two years by preventing egg masses from being deposited.

The chemical has EPA granting registration, causes very low incidence of environmental effects and breaks down in soil with 50 percent degradation in several days.

## Supers Get News Update On Hyperodes Weevil

Golf managers can arm themselves with new knowledge about the hyperodes weevil, according to the Metropolitan Golf Course Superintendents Association.

Dr. H. Tashino, Cornell University, addressed an audience of the MGCSA concerning his research of the weevil since 1972.

Dr. Tashino's research in the weevil's life cycle points to to their overwintering as mature adults in the bases of fescue tufts. They generally spend this time beneath trees or other protected areas. With the advent of warm weather, the adults travel into areas infested with *Poa Annua* and feed eat the leaves. At this time, damage is not very serious.

During April and May, the insects leave their eggs on leaf sheaths and the larva devour stem tissue following their five stage metamorphosis. After eating the stem tissue, the pests eat the crown at the plant's base causing greater, more visible damage. The larva then progress into a pupa and adult. They are visible at night in the beams of a flashlight.

Dr. Tashino is now studying the life span of the Hyperodes to see if they have more than one generation and more than one species. He is also studying the activity of the weevil in comparison with the flowering period of dogwood and other common plants.

## Seven Washington Area Firms Get Landscape Awards

The Landscape Contractors of Metropolitan Washington recently announced their 1976 Environ-

mental Landscape Awards Program awards winners. Seven Washington area firms were honored.

The entries were judged in residential, commercial or industrial, and institutional or municipal categories based upon quality of design, workmanship, materials and maintenance on site visitation.

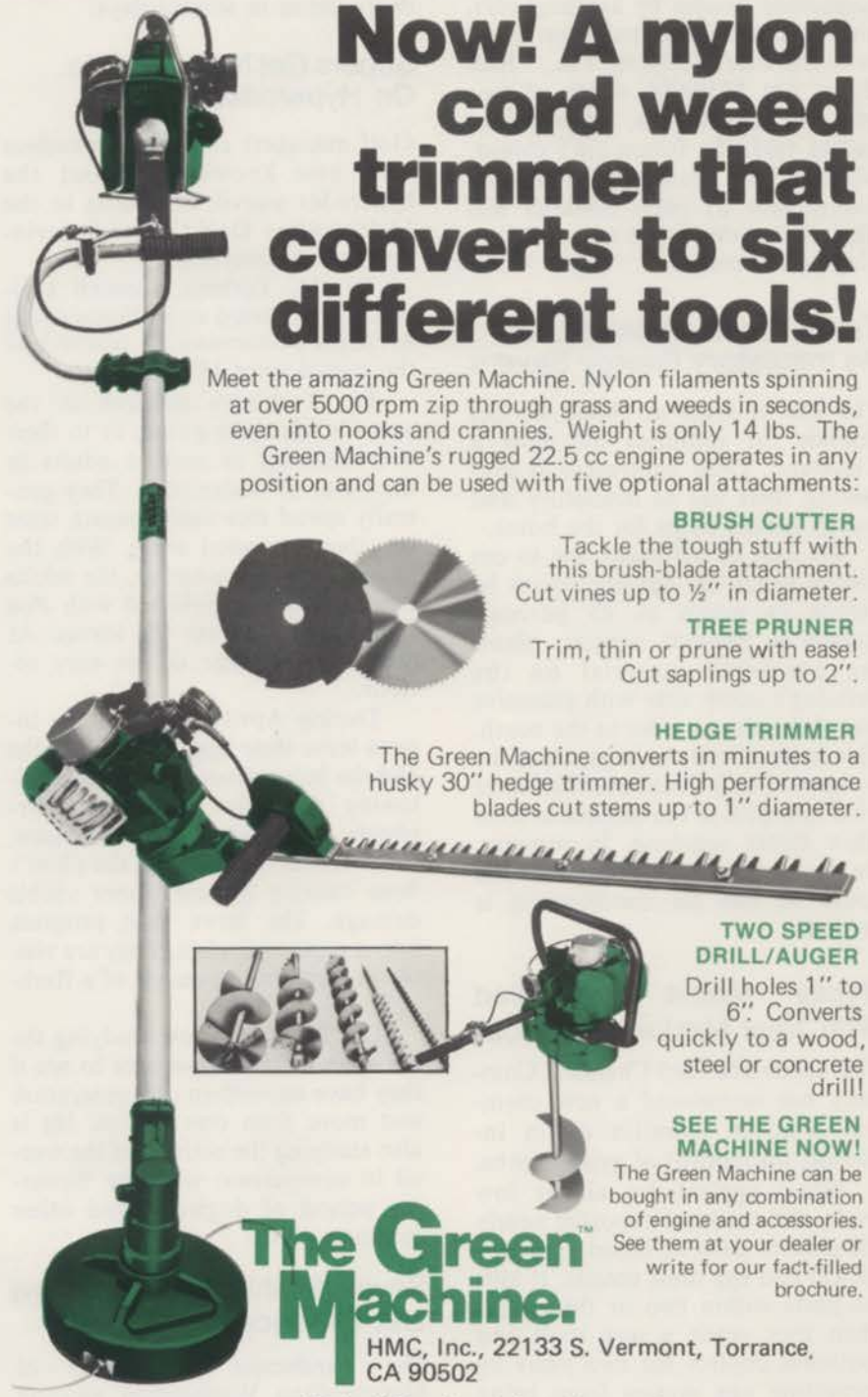
The grand prize for institutional or municipal landscaping went to Holland Gardens Nursery and Landscape, Inc., Beltsville, Maryland, for its installation for LaFayette Park, known as the Presidents' Park.

Chapel Valley Nursery Company, Woodbine, Maryland, received the grand award for commercial or industrial landscaping for its installation of the Christ Church Harbor Plaza Complex. The project was designed by Hisaka and Associates/Behnke Associates.

The grand award for residential landscaping went to Ten Oaks Nursery, Clarksville, Maryland, for the installing of Land Design/Research, Inc.'s design of the Dr. Brenner home in Clarksville.

Merits awards winners were: Gustin Gardens, Inc., Gaithersburg, Maryland, for the Raymond Ruf residence; Garden Gate Landscaping, Silver Spring, Maryland, for the Calomiris residence; Stadler Nursery, Laytonsville, Maryland, for the Alfandre residence; and Holland Gardens Nursery and Landscape, Inc., Beltsville, Maryland, for the library of the Zoology Complex at the University of Maryland.

Program judges were: Tevy Shalafman, President, Potomac Chapter of the American Society of Landscape Architects; Richard Brillantine, landscape architect, District of Columbia Office of Beautification; Carl Hahn, horticulturalist, Maryland National Park and Planning Commission; and Ted Human, landscape architect.

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## U.S. Grant Promotes Study Of Ohio Mining, Hydrology

The U.S. Bureau of Mines has approved a $2.35 million grant to the Research Center, the USDA's Agricultural Research Service, and the U.S. Geological Survey to conduct five years' studies on the effects of coal strip mining on hydrology and quality of surface and ground water in Ohio.

The research is expected to expand the Ohio Agricultural Research and Development Center's strip mine reclamation research work.

The U.S. Soil Conservation Service, Muskingum Watershed Conservancy District and three privately owned mining companies are also involved.

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We were young. At war. With no experience.

And who knew if we'd ever pay back the money?

Well, 200 years have passed. And the U.S. government has always paid in full. To the penny.

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## Industry News

### Natural Enemies Studied As Alternative Pest Control

Instead of resorting solely to pesticides to control insect pests, science is now developing means of control through the predatory and parasite relationship of natural pest enemies.

Dr. Frank Gilstrap, a scientist with the Department of Entomology at Texas A & M University, now controls populations of spider mites, tiny red insects which destroy houseplants, by introducing Phytoseiulus persimilus, a beneficial mite species, the spider mite's natural enemy. The predator mites eat all the spider mites and starve after their task is through. They may be brought back again if spider mites return.

Such processes are also used in controlling pests which form galls on ornamental plants and trees. Gordon W. Frankie, also with the Department of Entomology, uses beneficial wasps to feast upon the small wasps, flies, caterpillars or beetles that lay their eggs or feed on plant tissue, forming galls. The galls are not harmful to plant tissue but are considered unsightly. Scientists theorize that secretions of chemicals from the insect's body create abnormal growth when they react to the plants' chemicals.

### EPA Gives Daconil Approval; Rate Reduction Underway

EPA has given approval for a rate reduction for Diamond Shamrock's Daconil 2787 Flowable Fungicide.

The company has changed rates from six to eight ounces per 1,000 sq. ft. to four to eight ounces per 1,000 sq. ft. Other curative rates will stay the same.

Daconil is used on golf course and ornamental turf grass. It is used to treat dollar spot, helminthosporium leaf spot and melting out.

### USDA Develops Polymer Used Against Weeds, Insects

The USDA has developed a new film-forming polymer for creating barriers against weeds or insects.

Made of sewage sludge, methyl

(Continued on page 68)

# And you can quote me

"...Exhalt 800 is one of the finest products to come on the market in a long time. Not only are we getting much more control out of our spray programs, but we are saving a great deal of money by cutting our rates..."

**Louis E. Miller, Louisville (Ky.) Country Club**

"...I get much more prolonged control from the pesticides. This, obviously, is very beneficial during the hot, humid summer months..."

**Michael Jacques, Millbrook Golf Club, Greenwich, Ct.**

"...I added Exhalt 800 and got the best control for snow mold ever..."

**Bill Adams, Treasure Lake, DuBois, Penna.**

"...Exhalt 800 mixed with any of my chemicals makes them last at least three times longer..."

**H.T. Shaver, Great Southwest Golf Club, Grand Prairie, Tex.**

"...4½ inches of rain in a 30-hour period. I sprayed before the rain; the weather was hot and muggy. Afterwards I was unable to mow fairways for two days. Later, I went out and inspected the fairways. I found your material still clinging to growth, and my fairways were disease-free—thanks to Exhalt 800."

**Andy Drevyanko, Rolling Green Golf Club, Springfield, Penna.**

And what do we say about Exhalt 800? That it'll give you better protection at lower label recommendations. Longer protection at higher label recommendations. Others say so, too; university tests prove it. Ask to see the proof.

**Exhalt®800**
Sticker-Extender

Kay-Fries Chemicals, Inc., Crop Protection Division, Stony Point, N.Y. 10980

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(Continued from page 66)

alcohol and a starch compound, the pesticide-polymer dries to an invisible film after being applied as a spray on soil or plants. A polymer is a compound created by combining small molecules or units to form large molecules.

According to William B. Roth, Agricultural Research Service (ARS) scientist, the polymer film won't dissolve in water. It keeps the pesticide in a barrier that will destroy emerging weeds or attacking insects and minimizes environmental pollution by reducing pesticide runoff and evaporation. After the pesticide is exhausted, the film decomposes into natural soil components.

The new polymer also increases the effectiveness of a commercial herbicide and needs a low rate of herbicide application to stop grass weed growth. It was as successful as greater applications and amounts of herbicide without the polymer. With the polymer, the herbicide didn't require mixing with soil to prevent evaporation. Instead, the herbicide-polymer was sprayed on the soil surface and dried as a weed-emergence barrier.

Roth developed the polymer from a viscous product which was found by Edwin N. Davis, a microbiologist, and Lowell L. Wallen, a chemist, at the Northern Center. Their studies revealed the bacteria in activated sludge form a thick, black product when methyl alcohol is mixed and aerated with the sludge.

In other actions, Roth adds the pesticide to the sludge-alcohol and combines it with dialdehyde starch as a cross-linking agent. The starch compound was another Northern Center discovery and is marketed as a paper strengthening agent.

The pesticide-containing polymer may be added to water for spraying on soils or plants so it dries to the film barrier. These could be dried as films or sheets in the manufacturing plant and used in solid forms.

This is the second pesticide-control development from the USDA ARS Northern Regional Research Center since encapsulating chemicals with starch xanthate were announced in May.

Roth is now preparing studies to form delayed reaction and on-target pellets for the polymer.

## 350,000 Acres of Timber Affected by Pitch Canker

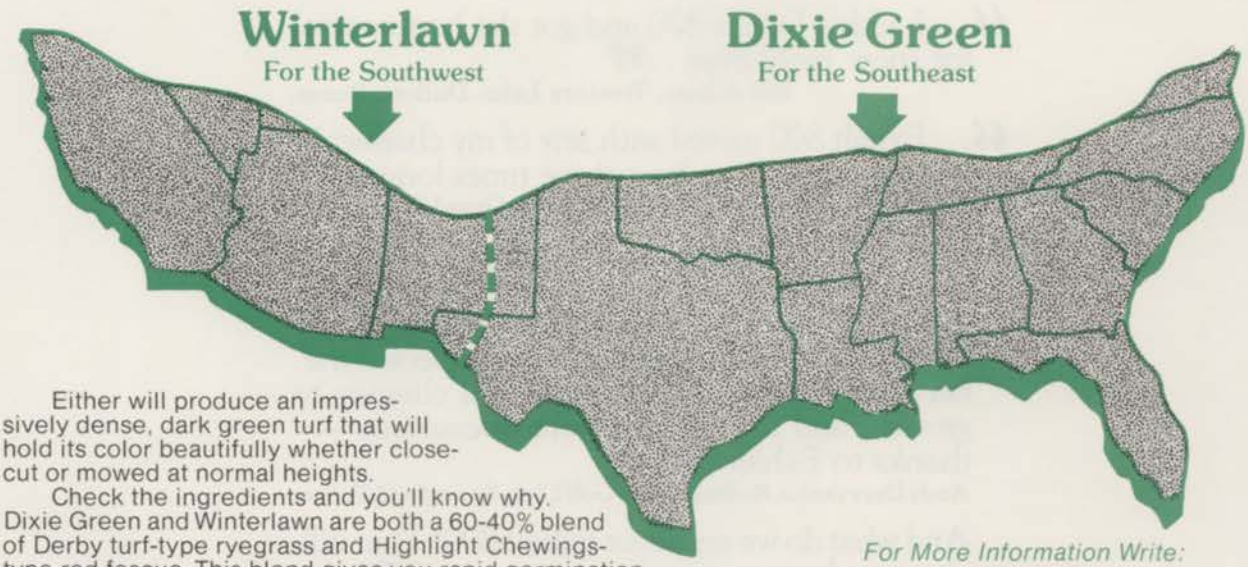
Forest experts are still baffled by the outbreak of pitch canker disease in Volusia and Flagler counties in Florida and the southeast.

The disease affects shade and ornamental pine in addition to forest pine.

According to the latest esti-

(Continued on page 70)


# For Premier Quality In a Winterseeding Blend Insist On




Either will produce an impressively dense, dark green turf that will hold its color beautifully whether close-cut or mowed at normal heights.

Check the ingredients and you'll know why. Dixie Green and Winterlawn are both a 60-40% blend of Derby turf-type ryegrass and Highlight Chewings-type red fescue. This blend gives you rapid germination, smooth spring transition and a turf of unsurpassed quality. Dixie Green and Winterlawn have been tested, tried and proven. Their strongest supporters are Superintendents who have tried the blend.

Derby is the ryegrass that joined Pennfine and Manhattan on the "preferred list" and Highlight was judged World Champion at the 45th Annual Royal Agricultural Winter Fair in Toronto.

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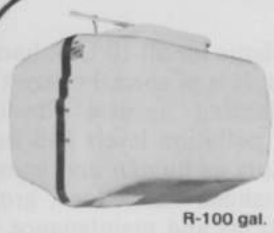
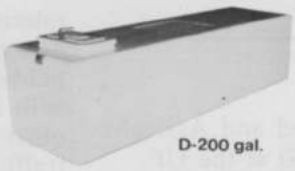


R-100 gal.



D-200 gal.

PC-800 gal.

C-500 gal.

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(FOR MOUNTING ON YOUR TRUCK)

Cutaway view showing D. 200 gal. mixing tank.

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**FIBERGLASS SPRAY TANKS**

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Lightweight fiberglass, solid single-piece construction, eliminating maintenance.

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Smooth, non-porous surface easily rinsed to reduce chemical carry over contamination that causes clogging damage to spray equipment.

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Baffling system to reduce liquid surge.

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***THE* Tuflex Manufacturing process allows a five year warranty on all tanks.**

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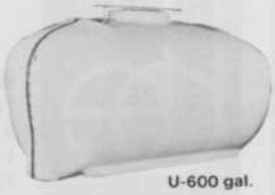
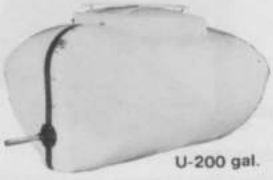
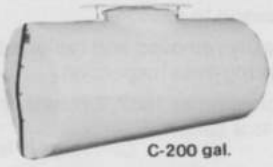


U-600 gal.



U-200 gal.



C-200 gal.

mates, some 350,000 acres of slash pine in these two counties are affected by the destructive disease, representing a potential timber growth loss of nearly $2 million. Less severe pitch canker infections are showing up in other areas of Florida and the southeast.

A *fusarium* fungus is the prime suspect in causing the disease, but no one is certain how it is spread and there are no known controls available at present, according to a University of Florida forest pathologist.

First observed in 1945, the disease has occurred periodically over the years, seemingly at random. During the last serious outbreak in 1969, many trees were infected, but few died. Many trees actually recovered. The present rate of spread, however, has been particularly alarming, says Dr. Robert A. Schmidt, associate professor with the Institute of Food and Agricultural Sciences (IFAS) at the UF.

"We are presently experiencing a high incidence of pitch canker in slash pine plantations and seed orchards. Entire crops are involved and tree mortality is very high in some areas. Heretofore, only a few terminal branches were attacked and tree mortality was not severe," he explains.

## Environmental Plant List, Index, Offered by Society

The American Horticulture Society has published a series of valuable publications relating to plants and its own history in horticulture studies.

The educational Horticultural Committee of the Society recently printed "Environmentally Tolerant Trees, Shrubs and Ground Covers," a 30-page listing of environmentally tolerant plants for all 10 U.S. hardiness zones. It is of special interest to public planting agencies dealing with high pollution levels and such other factors as human and animal traffic, financial restrictions, growing conditions and maintenance.

An index of 50 years of the National Horticulture Magazine, Vols. 1-38, 1922-1959, and American Horticultural Magazine, Vols. 39-50, 1960-1971, is now available.

The reference tool is 109 pages long and is a complete grouping of all issues. It was produced by Dr. Richard A. Howard, Director, Arnold Arboretum, and the American Horticultural Society Cumulative Index Committee.

"Environmentally Tolerant Trees, Shrubs and Ground Covers" costs $2.95 post paid from the American Horticultural Society, Mount Vernon, Virginia, 22121 and the index is $10 a copy from Cumulative Index Committee, c/o The American Horticultural Society, Mount Vernon, Virginia 22121.


A Great New Labor Saver...

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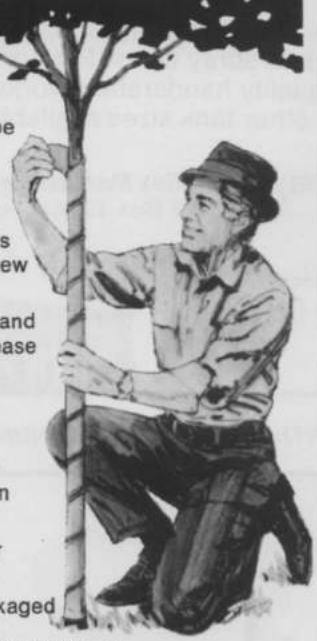

The Ross TreeGARD is a simple easy-to-handle plastic snap-on tube that expands to fit any young tree.

- Protects against sun scald, yet allows proper ventilation.
- Protects tender bark from rabbits and other rodents that feed on new growth.
- Protects against mower bruises and gashes that expose trees to disease and insect damage.
- No taping, tying or gluing is necessary.
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- Easily removed and replaced for spring-time inspection.

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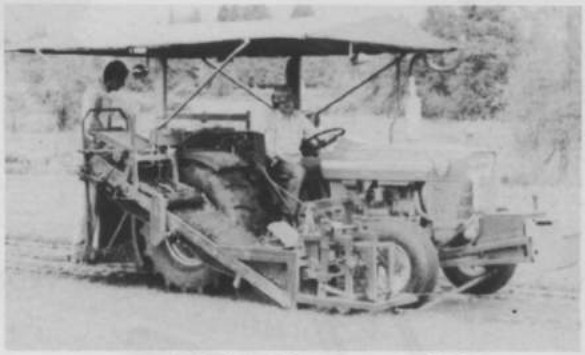

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- Vertically mow in two directions.
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- Top dress with ¼ inch sand, soil and peat in 6-2-1 ratio.
- Keep moist until germination.
- Upon emergence, fertilize with 1.5 lbs. of actual N per 1000 sq. ft.
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"Putting green quality" Emerald is now available in larger supplies than ever from your Emerald distributor or jobber or write:

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CREEPING BENTGRASS

# Genetic information needed for metropolitan trees

Progressive arborists and nurserymen have demonstrated impressive gains from exploiting genetic variation in certain characteristics of street trees. But the authors of a recent report suggest it is time for a more comprehensive approach, not only to make fuller use of these gains, but to achieve even greater genetic progress.

The report was prepared at Pennsylvania State University by H. D. Gerhold, professor of forest genetics; A. J. Long, former assistant professor of forest genetics; and M. E. Demeritt, former research assistant.

"The metropolitan regions of the Northwest offer diverse, and increasingly inhospitable, environments for trees," their report says. "Stresses include not only the familiar ones — adverse soils, droughts, freezes and disease organisms — but also other insults that accompany urbanization such as air pollutants and deicing salts. Only fragmentary information is available about the effects of such stresses on the health of various species and clones, and little is in a form that can be readily applied."

They set up a genetic information system, with the principal components including:

- Taxonomic categories — species, varieties, clones.
- Tree characteristics — appearance traits, adaptive traits.
- Environments of trees — hardiness zones, planting situations, urban stresses, diseases and insects.
- Organizations — municipalities, highway departments, nurseries, seed companies, government and university research agencies, arboreta.

They saw the principal functions of the genetic information system as follows:

- To organize performance tests of important trees at representative geographic locations.
- To obtain performance test data periodically on important characteristics from cooperating specialists.
- To interpret performance data and other pertinent data, transforming it into practical predictions of tree qualities in various environments.
- To distribute performance predictions periodically to cooperating individuals and organizations.
- To analyze for nurserymen trends in planting rates of species and clones.
- To analyze for breeders relative needs for improving various characteristics.

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# *With a little bit of luck . . .*

## *Fred Slagle transformed 200 acres into Ohio's toughest 72 par course with unorthodox methods*

*by mick baker*

With common sense, good luck and God's help, what can one man do?

Three years ago Fred Slagle started to build a golf course for himself. He took 200 acres of rolling farmland in northeastern Ohio, complete with 10,000 white pines and other trees native to that scenic area, and turned it into a blossoming championship course with 13 lakes, 14 water holes and 62 sand traps.

He must have done something right, because the course has been rated the hardest 72 par course in the state three months after it opened. Its nine-month-old turf was unbelievable to those with two or three-year-old courses and the envy of some with older ones.

Although Slagle attributes the success to "common sense, a lot of good luck and conditions that can only be called God's help," his foresight and preparation, as well as what some call his creative genius, have played an important role in the transition of a tract of rural countryside in Madison, Ohio into Thunder Hill Country Club, which is worthy of being called a resort.

"I've been successful by just starting to do it," says Slagle, a real estate broker who had never built a golf course before. "I never intended to build a championship golf course, but I like a challenge and I didn't want to cater to the average golfer. I wanted a course with interest and challenge."

So three years and $1.5 million later he has exactly that. Other builders may not benefit much from his good luck, but a little of his "common sense" philosophy might very well help some.

A unique aspect of the course is the extensive use of lakes and watersheds. Fifteen of its 60 acres of fairways are under water.

The hilly terrain has a topography naturally suited for lakes and ponds. Instead of using tile or open ditches to drain the course, Slagle decided to dam up the swells and let the water run off the predominantly clay soil into them, forming watersheds and lakes.

Use of water in this manner has other advantages. It beautifies the course, adds more hazards and saves maintenance costs, since 15 of the 60 acres of fairways do not have to be cut, seeded or fertilized. It also saves a step in construction since little tile must be put in. Slagle only used about ten percent of the tile that a comparably sized course would have needed. He said the expense of building the lakes enabled him "to spend money more wisely to have a more beautiful course."

The presence of one of those lakes saved the builder more than he was expecting it to — about $150,000 in green mix to be precise. The lake was losing water and he suspected the presence of porous material. His grass consultant discounted the possibility of sand, saying the area was entirely clay. Slagle dug four holes five feet into the ground near the lake with a bulldozer and came up with a bucket of soil that was analyzed as a good combination for green mix, minus peat moss. Slagle was happy and the consultant was shocked.

Preparation and the right equipment were two key elements in the course's construction. "The secret of our success was careful soil preparation," said Slagle, adding that 600 soil samples were taken at the course. They were taken before disturbing the land, after moving it and just before seeding. After each sample was taken, corrections were made to bring the soil up to ideal growing conditions.

Some 500,000 yards of dirt were moved during construction and Slagle was careful where he put it. When he removed topsoil from an area he immediately dumped, where it would be eventually needed, rather than leaving piles and coming back to them later. After damming up the swells to be filled with water, he took the topsoil and added it to the tee areas. He claims this bit of foresight will keep his tees in better condition and give the course variability.

The larger tees provide the opportunity to move the pins more often, thus insuring minimal use to any particular spots on the tees. The extra topsoil also allowed him to build tiers on the tees, as many as six on some. The pins can be set in such a number of places that shots can be changed. "We can change the tees so the shots are different everytime," said Slagle, "and the golfer can be facing a whole new course." This is to keep Thunder Hill from becoming a boring course, which he claims can cause golfers to stop concentrating.

When he realized how much soil would have to be moved, Slagle decided to buy the needed equipment and do his own moving. To have had it contracted would have cost upward from $1.25 a yard. Buying the equipment was a fortunate choice for him in present market

# *With a little bit of luck . . .*

conditions. With the price of equipment rising steadily, he was able to sell it two or three years after purchase at the same price which he paid for it. On some of the machinery he even turned a profit.

Among the pieces that were helpful in the construction of Thunder Hill, according to Slagle, was the Miller disc, not normally used in golf course construction. The disc is used in heavy farm conditions to eliminate plowing, as in the case of corn stubbles. He used the disc to correct a problem caused by a previous owner of the land. To discourage hunters, a farmer had plowed erratic furrows, which developed into deep ruts through erosion. They were almost impossible to walk across. Slagle saved a step in construction with the disc, as the other alternative was to plow and disc.

Other earth movers Slagle used included two John Deere self-loading pans, which he said were ideal for golf courses because of their high speed. He mentioned the Case 1150B bulldozer was highly auto-

Fred Slagle plays his Thunder Hill course. (Photo by Jack Lardomita.)

matic, very fast and had an efficient angle and till blade. "Its speed is incredible," he said, "it can shape greens, traps and bunkers into a finished grade."

On the fairways he used a York rake with a drag of his own design. The drag was a pipe float that consisted of six four-inch pipes, ranging in length from 10 to 16 feet. The pipes were welded together with three-foot chains, the shortest pipe first and each succeeding pipe about a foot longer. Slagle felt existing drags, such as railroad ties, were not effective enough for this particular job, so he came up with the pipe float to accommodate the needs of golf course construction.

Thunder Hill's fairways, an eight-way mixture of bluegrasses, and the greens, Penncross bentgrass, were double and triple seeded. Slagle said the Brillion seeder had much to do with his success because it covers such a large area. The course was ready to seed last September, but rain delayed seeding until October. It had been mowed four times by the middle of November and Slagle played golf on it November 30. When the course officially opened in May, professionals and members of other clubs were almost astounded at the rapidity of turf growth. They commented that Thunder Hill has better turf than courses seeded years ago.

Why has Thunder Hill been such a success? According to Slagle, "Other golf course architects probably wouldn't have the success we've had because of the extra time and expense we've put in. But when you're doing it for yourself, you tend to do it right."

# Meeting Dates

**Tennessee Nurserymen's Association,** Annual Meeting, Mountain View Hotel & Motor Lodge, Gatinburg, Sept. 16-17.

**Transworld Home Horticultural Exhibit,** Chicago Expocenter, Sept. 19-22.

**The Fertilizer Institute,** International Fertilizer Conference, Waldorf-Astoria Hotel, New York, Sept. 19-22.

**Indiana Golf Course Superintendents Association** Meeting, Westbrook Elks, Sept. 21.

**Lawn and Garden Distributors Association** 6th Annual Convention, Hyatt Regency, San Francisco, Cal., Sept. 22-24.

**Farwest Nursery Show,** Memorial Coliseum, Portland, Ore., Sept. 22-24.

**Wy-Mont Golf Course Superintendents Association** meeting, Ramada Inn, Billings, Mon., Sept. 24-25.

**Annual Midwest Field Day,** Purdue Agronomy Farm, West Lafayette, Ind., Sept. 27.

**California Association of Nurserymen,** 66th Annual Convention, Sheraton Inn Hotel, Fresno, Sept. 28-30.

**Florida Nurserymen and Growers Association,** Hort-I-Scope International Short Course, Curtis Hixon Convention Center, Tampa, Sept. 30-Oct. 1.

**Fourth Annual Drip Irrigation Conference,** "Drip '76", Fresno, Cal., Sept. 30-Oct. 6.

**Nebraska Golf Course Superintendent Association Meeting,** Hillcrest Country Club, Lincoln, Oct. 4.

**Northern California Turfgrass Council** Turf and Landscape Irrigation Seminar, Asilomar Conference Grounds, Pacific Grove, Oct. 1-3.

**Florida Nursery and Allied Trade Show,** Curtis Hixon Convention Center, Tampa, Oct. 1-3.

**Society of American Foresters,** New Orleans, Oct. 3-7.

**Hill Land Symposium,** West Virginia University, Morgantown, Oct. 3-9.

**Midwest Association of Golf Course Superintendents** Meeting, Butler National Golf Club, Oct. 4.

**Nebraska Golf Course Superintendents Association** Meeting, Hillcrest Country Club, Lincoln, Oct. 4.

**Tri-State Golf Course Superintendents Association** Meeting, Owensboro Country Club, Kentucky, Oct. 5.

**Northern California Turfgrass Council,** Irrigation Seminar, Oakland Hilton Inn, Oct. 6.

**Fertilizer Institute** International Fertilizer Conference, The Fairmont, New Orleans, La., Oct. 6-8.

**Florida Turfgrass Association** Management Conference and Show, Sheraton Hotel and Convention Center, Orlando, Oct. 10-14.

*continued on page 78*

**Indiana Golf Course Superintendents Association** Meeting, Eagle Creek, Oct. 12.

**Ohio Golf Course Superintendents Association** Meeting, Westfield Country Club, Oct. 12.

**Philadelphia Association of Golf Course Superintendents** Meeting, Concord Country Club, Oct. 12.

**Kentucky Turfgrass Conference and Field Day,** Dam Village State Resort, Gilbertsville, Oct. 12-13.

**Northern Michigan Turf Managers Association** Meeting, Sugar Loaf Village, Cedar, Oct. 13.

**Greater Cincinnati Golf Course Superintendents Association** Meeting, Glennview Golf Course, Oct. 19.

**11th Annual Industrial Weed Control Conference,** Texas A & M University, Rudder Center, College Station, Oct. 20-21.

**The Sixth Southern Forest Soils Workshop,** Southern Forests Council, Charleston, S.C., Oct. 20-21.

**Southern California Turfgrass Council** 16th Annual Turfgrass Equipment and Materials Educational Expo, Orange County Fairgrounds, Costa Mesa, Oct. 20-21.

**Rocky Mountain Golf Course Superintendents Association** Meeting, Willis Case Golf Course, Col., Oct. 21.

**26th Central Plains Turfgrass Conference,** Kansas State Union, Manhattan. Oct. 21-22.

**Southwest Turfgrass Conference,** New Mexico State University, Las Cruces, Oct. 21-22.

**Irrigation Conference,** Center for Continuing Education, Appalachian State University, Boone, N.C., Oct. 21-22.

**Seventh Technical Conference on Irrigation,** Drainage and Flood Control, Spokane, Wash., Oct. 21-23.

**Oklahoma State Nursery Research Field Day,** Oklahoma State University, Stillwater, Oct. 25.

**Wisconsin Golf Turf Symposium,** Pfister Hotel, Milwaukee, Oct. 27-28.

**Fourth National Turf Conference,** Iluska Motor Inn, Surfers Paradise, Queensland, Austl., Oct. 31-Nov. 5.

**Tennessee Golf Course Superintendents Association** Meeting, Lakewood Country Club, Tullahoma, Nov. 1.

**Tri-State Golf Course Superintendents Association,** Western Hills Country Club, Mt. Vernon, Ind., Nov. 2.

*continued on page 80*

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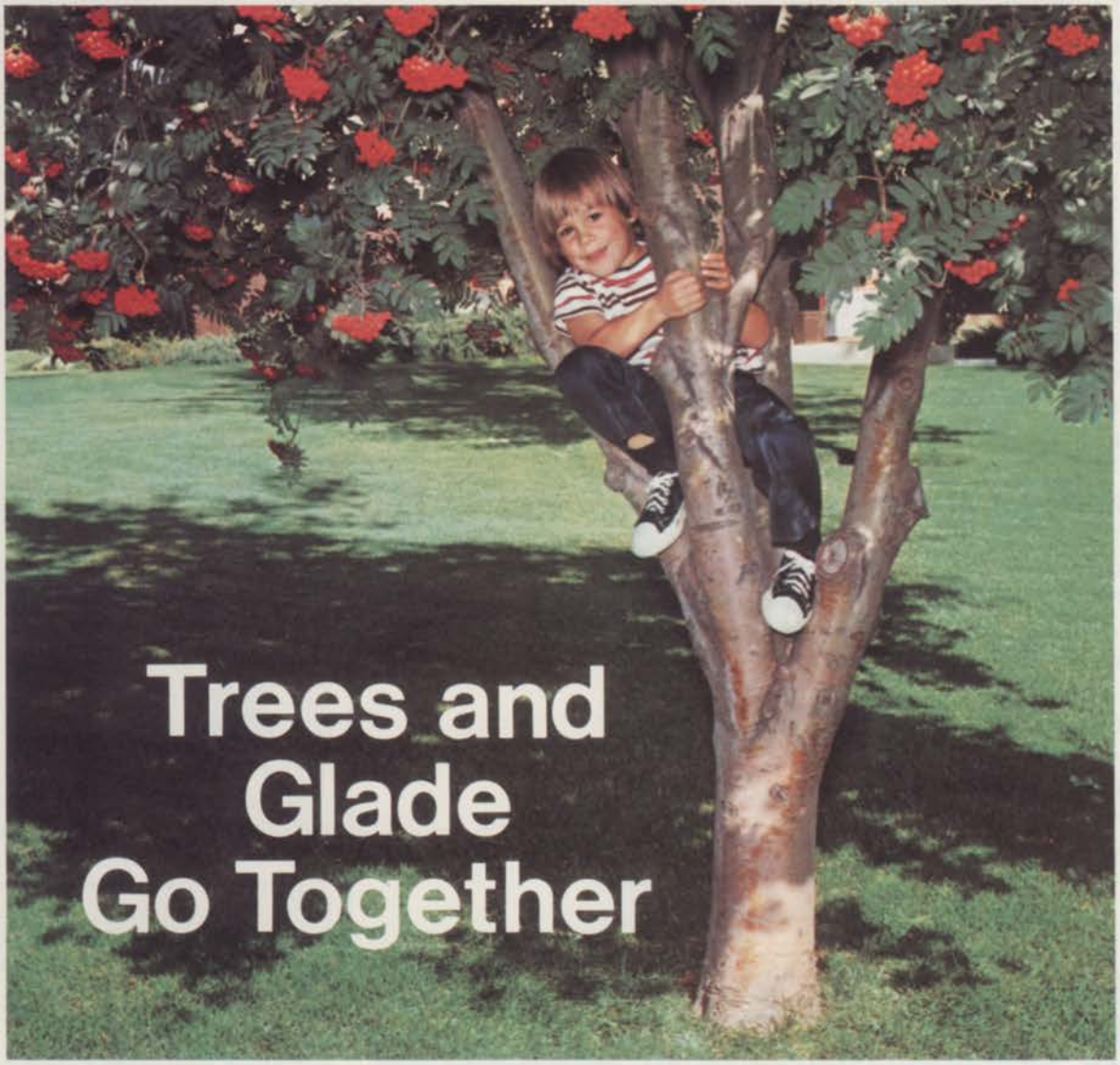


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**Sprinkler Irrigation Association** Annual Convention and Business Management Seminar, Newporter Inn, Newport Beach, Calif., Nov. 7-10.

**Sixth National Institute on Park and Grounds Management,** Marriott Hotel, Atlanta, Ga., Nov. 8-10.

**National Golf Foundation** Eastern National Daily Fee Golf Course Management Workshop, Pheasant Run Resort, St. Charles, Ill., Nov. 8-10.

**Indiana Golf Course Superintendents Association** Meeting, Delaware Country Club, Nov. 9.

**Philadelphia Association of Golf Course Superintendents** Meeting, Sunnybrook Golf Course, Nov. 9.

**Southern California Golf Course Superintendents** Meeting, Los Robbles Greens Country Club, Nov. 9.

**10th Annual Clemson Turfgrass Conference,** Clemson House Hotel, Clemson, S.C., Nov. 9-10.

**Missouri Turfgrass Conference,** Ramada Inn, Columbia, Nov. 11-12.

**30th Annual New York State Turfgrass Association** Conference, The Turf Inn, Albany, Nov. 16-18.

**Greater Cincinnati Golf Course Superintendents Association** Meeting, Belwood Country Club, Nov. 16.

**Seventh Annual University of Georgia Turfgrass Short Course,** Center for Continuing Education, University of Georgia, Athens, Nov. 22-23.

**31st Oklahoma Turfgrass Conference,** Oklahoma State University, Stillwater, Dec. 1-3.

**Texas Turfgrass Conference,** Rudder Conference Center, Texas A & M University, College Station, Dec. 6-8.

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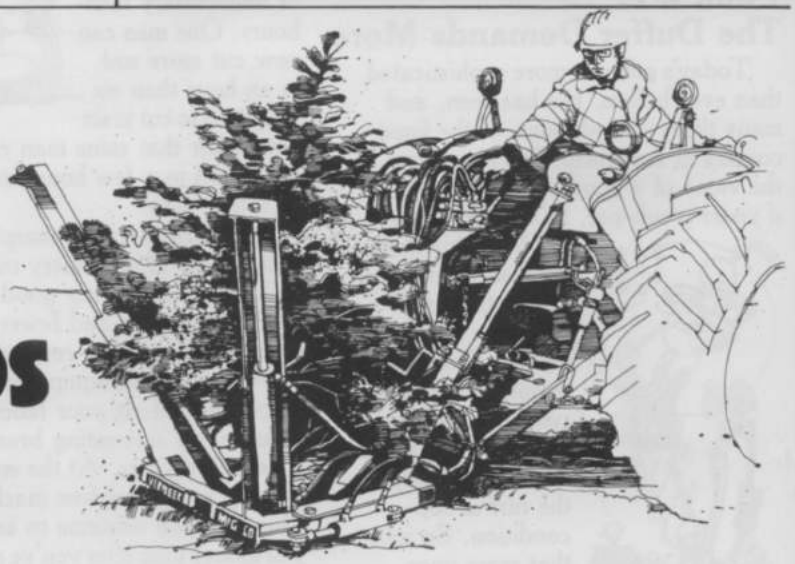

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# It can take months to compact a green. It takes 60 minutes to fix it.

Greens aeration is one of the most important maintenance jobs you have. Months of compaction can damage a green by preventing air, water, and fertilizer from penetrating the surface. Proper aeration is essential. But it must also be done quickly to get your course back in play and keep your golfers happy.

The Greensaire II does both. It cleanly penetrates the soil, removing cores up to 3" deep. It is so precise that the holes it makes do not affect the true roll of a golf ball. And the Greensaire is fast, aerating the average green in 60 minutes or less.

If you're satisfied with your soil content, the Greensaire's Core Processor attachment can make aerating even faster. It catches the cores, separates good soil from debris, puts the good soil back on top, and bags the debris. You top dress and collect thatch at the same time you aerate.

Maybe you don't need the big capacities of the Greensaire II and Core Processor, but you do want the same fine capabilities. Then choose the Greensaire 16. Instead of a 24" swath, you have a 16" width. You can use the same selection of tines and the convenient windrow attachment makes core removal easy.

And like all Ryan equipment, these machines are built to last. We believe longevity is just as important as performance.

Whether your greens need aerating twice a year or twice a month, there's no better or faster way than with Ryan aerating equipment.

For your free catalog, write OMC-Lincoln, a Division of Outboard Marine Corporation, 6531 Cushman Drive, P.O. Box 82409, Lincoln, NB. 68501.

## HERBICIDE APPENDIX—

# PBI Gordon offers full line

The August issue of WEEDS TREES & TURF contained a turf herbicide report of currently marketed herbicides from various chemical companies. The P.B.I. Gordon Corp., Kansas City, Kans., presented here was not included. WEEDS TREES & TURF regrets the omission.

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P.B.I. Gordon Corp. offers a full line of pesticides under the Acme label and specializes in phenoxy herbicides. Its Trimec, with basic components of 2,4-D, MCPP and dicamba herbicides, can handle weeds on such sensitive grasses as bentgrass. Trimec broadleaf herbicide contains 27.59 percent DMA salt of 2,4-D, 13.86 percent DMA salt of mecoprop and 2.76 percent DMA salt of dicamba. It works best on 2,4-D tolerant grasses such as bluegrass but can function on closely mowed bentgrasses if applied in a reduced rate. A special P.B.I. Gordon bentgrass formulation is recommended.

Trimec herbicide can control sheep sorrel, knotweed, spotted spurge, chickweed, oxalis and henbit plus broadleaf weeds bedstraw, black medic, buckhorn, burdock, chicory, chickweed, clover, dandelion, dock, ground ivy, heal-all, henbit, lambsquarter, lespedeza, mallow, morning glory, peppergrass, pigweed, plantains, poison ivy, poison oak, purslane, ragweed, shepherd's purse, speedwell, spurge, wild carrot, wild garlic, wild lettuce, wild onion and yarrow.

Mecoprop (MCPP or CMPP) works best in broadleaf weed control on grasses. It contains 6.59 percent DMA salt of 2,4-D, 19.87 percent DMA salt of mecoprop and 2.63 percent DMA salt of dicamba. Bentgrass should not be overdosed.

Specific broadleaves MCPP can control are sheep sorrel, knotweed, spotted spurge, chickweed, oxalis, henbit, bedstraw, black medic, buckhorn, burdock, chicory, chickweed, clover, dandelion, dock, ground ivy, heal-all, henbit, knotweed, lambsquarter, lespedeza, mallow, morning glory, peppergrass, pigweed, plantains, poison ivy, poison oak, purslane, ragweed, sheep sorrel, shepherd's purse, speedwell, spurge, wild carrot, wild garlic, wild lettuce, wild onion and yarrow.

Trimec spray should not be used on centipede or St. Augustine grass without some expected injury and weeds should only be spot sprayed. Clover will suffer if sprayed.

Gordon's Amine 2,4-D turf herbicide is accepted for use on such 2,4-D weeds as annual sow thistle, annual thistle, bindweed, buckhorn, bull thistle. carpet weed, chicory, dandelion, knotweed, kochia, lambsquarters, pigweed, ragweed, wild lettuce, wild radish and vervain.

Gordon's Betamec-4 uses betasan based pre-emergence herbicide for control of annual bluegrass, barnyardgrass, deadnettle, fall panicum, foxtails, goosegrass, hairy crabgrass, lambsquarters, redroot, pigweed, shepherd's purse, and smooth crabgrass.

It should only be applied on well established grass lawns of such grasses as Bermudagrass, bahia, bentgrass spp, perennial bluegrass spp., centipede, fescue spp., Pensacola bahia, perennial ryegrass, poa trivialis, St. Augustine, red top and zoysia. Betamec-4 may be applied to dichondra lawns at seeding time or later.

The company suggests lawns not be reseeded within four months of application. The area should be renovated for reseeding by raking thoroughly to scarify the soil surfact. When possible and practical, peat should be mixed with soil for an optimum seed bed.

If turf diseases or physiological disorders makes reseeding necessary before four months after application, activated charcoal should be applied before reseeding to deactivate the chemical. Charcoal application should follow seven pounds per 1,000 sq. ft. (300 lbs. per acre in 600 gal. of water per acre). Irrigation should follow appliaction with no reseeding done until seven days after applying the charcoal.

# Which is cheaper, five men and rakes or one man and a Jacobsen sweeper?

It's surprising how often you can analyze a turf care chore and discover how to get the same job done faster and cheaper with the right kind of turf care equipment.

Jacobsen Distributors can help you figure out, in black and white, just how much it's costing you in man-hours to sweep, or mow, or even seed an area.

Then compare the same operation with getting it done by one man and new Jacobsen equipment. You can see for yourself how time and money can be saved.

That's just part of what a Jacobsen distributor considers as giving good service.

We not only want you to buy the best equipment for the job, we want to make sure that you're convinced it's the smartest thing you can do.

Beyond that, we can probably help you arrange a financing or leasing program to help you get the equipment that will start saving you money right away.

Why not ask your Jacobsen distributor to do a cost analysis on your turf care chores? It won't cost you anything to get an answer.

But it could be costing you something if you don't.

**Your Jacobsen Distributors**

Great products deserve great service.

For the name of the distributor near you write: Jacobsen Turf Distributor Directory, 1721 Packard Avenue, Racine, Wisconsin 53403

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# Sometimes it's better to hear it from someone else...

"I use Baron for every acre of bluegrass I grow. Baron gives what you guys call in your advertising... a tight-fisted root system. It holds together. . .I can shake it like a rug."

## Here's what Berkley Carter of Tuckahoe Turf Farms,* Slocum, R.I. has to say about

## baron KENTUCKY BLUEGRASS

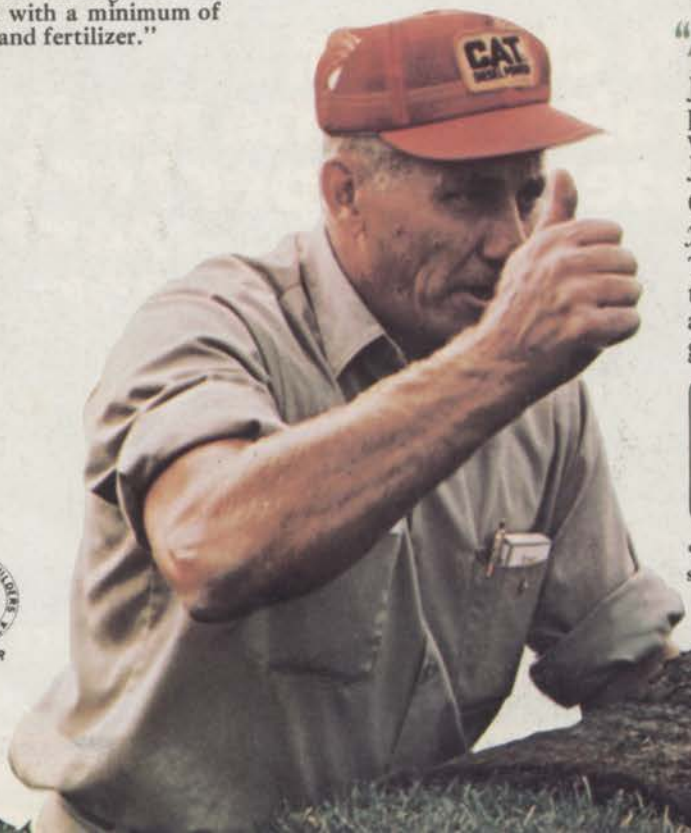
*U.S. Dwarf Variety Plant Patent No. 3186*

"Of all the bluegrasses, Baron is resistant to more diseases. I've had two different bluegrass fields side by side and Baron always shows more resistance. It holds up its color throughout the season with a minimum of water and fertilizer."

"When I need a herbicide, Baron can take the shocks better without streaks or setbacks. It is an aggressive grass needing only minimum maintenance practices."

"Baron comes up fast. . . that's important to me. I want to see fuzz in 7 days so that the soil is protected as soon as possible."

"It's hard enough getting the seedbed ready; I'm not going to spoil everything with a poor quality seed. I don't know why every sod grower doesn't use Baron."



### "And your Jamestown Fescue is great too."

Jamestown is perfect for a bluegrass blend, particularly Baron. It has great eye appeal and when sod is needed for sun and shade areas Jamestown/Baron really go well together.

One more comment from Berkley. . ."*When you've got a good thing going – stick with it.*"

There's not much more we can add except that Lofts Pedigreed Seed Company or any authorized distributor is nearby wherever you grow sod.

Exclusive North American Grower and Distributor:

**Lofts Pedigreed Seed, Inc.**

Bound Brook, N.J. 08805 / (201) 356-8700

*Tuckahoe Turf Farms, growers of 600 acres of cultivated sod, is one of the largest sod farms in New England.

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GOLF COURSE BUILDERS OF AMERICA MEMBER